THE JOURNAL

OF THE

ANTHROPOLOGICAL INSTITUTE

OF

GREAT BRITAIN AND IRELAND.

NOVEMBER 8TH, 1881.

Professor W. H. FLOWER, LL.D., F.R.S., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From JOHN COLE, Esq.—Saint Augustine. A Poem. By the late H. W. Cole, Q.C.

From Rev. F. A. ALLEN.—Relaciones Geográficas de Indias: Perú.

From the GOVERNMENT OF THE PUNJAB.—Glossary of the Multani Language compared with Punjábi and Sindhi. By E. O'Brien.

—— A complete Dictionary of the terms used by Criminal Tribes in the Punjab. By Muhammad Abdúl Ghafúr.

—— A Sketch of the Changars and their Dialect. By G. W. Leitner, LL.D.

—— A Detailed Analysis of Abdúl Ghafúr's Dictionary of the terms used by Criminal Tribes in the Punjab. By G. W. Leitner, LL.D.

From the GOVERNMENT OF MADRAS.—Administration Report of the Government Central Museum for the year 1880-1881.

From the AUTHOR.—The Cycle of Development. By Hodder M. Westropp.
—— La Place de l'Anthropologie dans les Sciences. By Dr. Dally.
—— Extrait du Dictionnaire Encyclopédique des Sciences Médicales. Article Craniologie. By Dr. Dally. Article Femmes. By Dr. Dally.
—— Die Schädelform der Griechen. By Dr. A. Weisbach.
—— Drei Schädel aus Römergrabern bei Metz. By Professor Schaffahausen.
—— Der neunte internationale Congress für prähistorische Anthropologie und Archäologie in Lissabon, 1880. By Professor Schaaffhausen.
—— Die Anthropologie auf der Versammlung der British Association in Swansea, 1880. By Professor Schaaffhausen.
—— A New Afghan Question, or are the Afghans Israelites? By Surgeon-Major H. W. Bellew.
—— The Manuscript Troano. By Professor Cyrus Thomas.
—— Pliocene Man in America. By James C. Southall, A.M., LL.D.
—— The Adoption of a Prime Meridian to be common to all nations. By Sandford Fleming, C.M.G.
—— Les Instruments en pierre a l'époque des métaux. By Le Baron J. de Baye.
—— Sul peso del cervello dell'uomo. By Giustiniano Nicolucci.
—— Ueber die Weddas von Ceylon und ihre Beziehungen zu den Nachbarstämmen. By R. Virchow.
——Caer Pensauelcoit, a long lost un-Romanised British Metropolis. By Thomas Kerslake.
From the SMITHSONIAN INSTITUTION.—Smithsonian Contributions to Knowledge, Vol. xxiii.
—— Smithsonian Miscellaneous Collections, Vols. XVIII-XXI.
—— A Memorial of Joseph Henry.
—— Anthropological Investigations during the year 1879.
From the LEWISHAM and BLACKHEATH SCIENTIFIC ASSOCIATION.—Report of the Committee for the Exploration of the Subsidences on Blackheath, July 1881.
From the SOCIETY OF ANTIQUARIES.—Archæologia, Vol. XLVI.
From the BERLIN ANTHROPOLOGICAL SOCIETY.—Zeitschrift für Ethnologie, 1881. Hefte 3, 4.
From the GERMAN ANTHROPOLOGICAL SOCIETY.—Archiv für Anthropologie. Band XIII, Part 4.
—— Correspondenz Blatt. Nos. 7-10.
From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland, October 1880, January 1881.
——Report and Transactions of the Devonshire Association for the Advancement of Science, Literature, and Art. Vol. XIII.
—— Proceedings of the Geologists' Association. Vol. VII, No. 2.
From the INSTITUTE.—Transactions and Proceedings of the New Zealand Institute. Vol. XIII.

From the INSTITUTE.—Proceedings of the Royal Colonial Institute. Vol. XII. 1880-81.

—— Proceedings of the Canadian Institute. Vol. I, Part 2.

From the INSTITUTION.—Journal of the Royal United Service Institution. Nos. 111, 112.

From the CLUB.—Proceedings of the Berwickshire Naturalists' Club, 1880.

—— Transactions of the Epping Forest and County of Essex Naturalists' Field Club. Vol. II, Part 4.

From the MUSEUM.—Fourteenth Annual Report of the Trustees of the Peabody Museum, 1881.

From the ACADEMY.—Nova Acta Academiæ Cæsareæ Leopoldino-Carolinæ Germanicæ Naturæ Curiosorum. Tom. XLI, Parts 1, 2.

—— Bulletin de l'Académie Impériale des Sciences de St. Pétersbourg, Tom. XXVII, No. 3.

From the SOCIETY.—Journal of the Society of Arts. Nos. 1493-1511.

—— Proceedings of the Royal Geographical Society. Vol. III, Nos. 7-11.

—— Journal of the Royal Geographical Society, 1880.

—— General Index to the fourth ten volumes of the Journal of the Royal Geographical Society.

—— Classified Catalogue of the Library of the Royal Geographical Society to December, 1870.

—— Proceedings of the Asiatic Society of Bengal, 1881. Nos. 4-8.

—— Journal of the Asiatic Society of Bengal. Vol. L, Part I, No. 2; Part II, No. 2.

—— Proceedings of the Ceylon Branch of the Royal Asiatic Society. 1875-1880.

—— Journal of the Ceylon Branch of the Royal Asiatic Society. Vol. VII, Parts 1, 2.

—— Transactions of the Asiatic Society of Japan. Vol. IX, Part 2.

—— Journal of the Royal Asiatic Society. Vol. XIII, Part 4.

—— Proceedings of the Royal Society. Nos. 213-215.

—— Proceedings of the Royal Society of Edinburgh, 1878-79, 1879-80.

—— Monthly Notices of Papers and Proceedings and Report of the Royal Society of Tasmania for 1879.

—— Annual Report of the Leeds Philosophical and Literary Society, 1880-81.

—— Transactions of the American Philosophical Society. Vol. XV, Part 3.

—— Proceedings of the American Philosophical Society. Vol. XIX, Parts 107, 108.

—— Bulletin de la Société de Borda à Dax, 1881, Parts 2, 3.

—— Transactions de la Société Impériale des Amis d'histoire naturelle. Tom. XXXVII, Sup. 1, Tom. XL.

—— Bulletin de la Société Impériale des Naturalistes de Moscou. 1880. Nos. 3, 4.

From the SOCIETY.—Bulletin de la Société d'Anthropologie de Paris, 1881, Nos. 1-5.
——Dritter Jahresbericht des Vereins für Erdkunde zu Metz pro. 1880.
—— Boletim de Sociedade de Geographia de Lisboa. 2ª Ser. Nos. 5, 6.
From the CONDUCTOR.—The Scientific Roll. Part I. No. 4.
From the EDITOR.—Journal of Mental Science, N.S., No. 82.
—— "Nature." Nos. 609 to 626.
—— The Chrysanthemum. Vol. I, No. 6.
—— Revue Scientifique. Tom. XXVIII, Nos. 1 to 14, 16 to 19.
—— Matériaux pour l'histoire de l'homme. Tom. XII; liv. 6e, 7e.
—— Revue d'Anthropologie, 1881, No. 4.
—— Revista di Filosofia Scientfica, 1881, No. 1.

It was announced that the following had been elected Members of the Institute:—

Dr. JOSEPH MAJER, of Cracow, as a Corresponding Member; and Miss LYDIA BECKER, Mrs. R. CRAWSHAY, Mrs. LLOYD, Miss ELEANOR E. SMITH, Miss WOLFE, Prof. H. ACLAND, M.A., M.D., LL.D., F.R.S., Jas. BACKHOUSE, Esq., W. BOWMAN, Esq., F.R.S., A. T. BRETT, Esq., M.D., Rev. H. CANHAM, B.C.L., J. G. GARSON, Esq., M.D., Hugh T. HALL, Esq., Captain HOZIER, W. J. KNOWLES, Esq., E. LLANFAIR LEWES, Esq., ALFRED LINGARD, Esq., M.B., G. D. LONGSTAFF, Esq., M.D.; F.C.S., W. PARKIN, Esq., H. SEEBOHM, Esq., F.Z.S., M. STIRRUP, Esq., H. STOPES, Esq., F.G.S., R. THOMPSON, Esq., and Professor E. PERCEVAL WRIGHT, M.A., M.D., F.L.S., as Ordinary Members.

Dr. J. G. GARSON exhibited some improved forms of Anthropometric Instruments, upon which Professor FLOWER and Mr. G. M. ATKINSON made some remarks.

The following paper was then read by the author:—

On the ANIMISM *of the* INDIANS *of* BRITISH GUIANA.

By EVERARD F. IM THURN, Esq.

1. THE word "animism" was first brought into prominence by Mr. E. B. Tylor to express that belief in the existence of spirits which, under many different forms, is shared by all men, both savage and civil. Careful study of the particular form of animism which prevails among the Indians of British Guiana and comparison of this with the simpler, the similar, and the more developed forms of the same system of belief which occur among

the various Indians of the east of America seems to show that all these forms differ from each other, not in kind, but only in the various degrees of their development. The particular form which occurs in Guiana, though not of the most, is yet of a very primitive order; and it is therefore worthy of study as the germ, in a very early stage, from which the higher forms of animism have developed. Again, animism itself has been said to be the simplest form of religion, the germ from which all higher religion has sprung; and the mass of evidence in favour of this theory grows daily larger. It is at least certain that animism is among certain men in a primitive stage of savagery all that represents religion, and this is so among the Indians of Guiana, wherever the highly elaborated doctrines of civilised religion have not been forced into their unprepared minds. Moreover, animism is extremely interesting, not only in its relation to religion, but also because it explains, or at least throws light on the whole behaviour and habit of the primitive men who have no further religion; the whole social system of people so situated depends, when unaffected by European influence, upon their animism. For these reasons I propose to describe, as completely as may be, the animism of the Indians of British Guiana.

2. It need hardly be said that the man who above all others has made this study possible is Mr. Tylor. It is more necessary to add that, quite recently, and after I had gained my own personal experience of Indian habits of thought, I have derived considerable countenance from Mr. Rushton Dorman's book on "The Primitive Superstitions of the Aborigines of America." From that book I learned much. It is especially valuable in that it proclaims the true nature of that puzzling mass of supposed Red Skin religion which is really not of genuine American origin, but has been built up by the misunderstandings of prejudiced European missionaries and early travellers among the Indians. These observers constantly fancied traces of the doctrines of their own higher religion in the folk-lore of the Indians; and even, not unfrequently, they themselves first taught some doctrine or fact which, when afterwards reheard from Indian lips, transformed as it naturally must have been in the mind of the untutored savage, they failed to recognise as their own teaching, and thought they had discovered a doctrine or fact of genuine Indian origin. To give Mr. Dorman's own chief example of this source of error and confusion in the study of Indian animism, the far-famed "Great Spirit," or supreme god of the Indians, is almost certainly nothing more than a figure of European origin reflected and transformed almost beyond recognition in the mirror of the Indian mind. Yet while agreeing with the fun-

damental idea which underlies Mr. Dorman's book, it is impossible to agree with many of its details. Upon one of these points of disagreement I dwell especially, because it seems to me that it forms one of the greatest remaining obstacles to the proper study of the simple forms of animism held by savages. I allude to the constant unguarded use which, in describing animism, he, in common with other writers on the same subject, makes of terms which, having been, as it were, consecrated by their use in connection with the higher religions, have thus acquired inseparable meanings which make them most inappropriate to the description of animism. The point will be best explained by examples. Among these terms are "gods," "worship," "the resurrection of the body," "the Creator:" all of which, with many others, have, owing to their use in the language of the higher religions, acquired special meanings expressive of certain ideas which belong to these higher religions, but are entirely wanting in the lower, that is in animism, or at least in the lower forms of animism. Consequently their use to express other ideas which do occur in the lower religions is most confusing and a hindrance to study. The Indian in the lower stages of culture has an idea of the existence of beings other than those which we call animals, but has no idea of any beings with the attributes of gods. In other words, the beings which fill the Indian universe work, as will presently be shown, only according to natural laws, or rather, according to what seem to the Indian natural laws, and are not, as are gods, capable of supernatural action. When, therefore, Mr. Dorman uses the term *gods* of the beings who, because of their brute power, are simply feared by the Indians, totally erroneous ideas are suggested to the reader. The term worship is similarly misused. The Indian of low culture does not worship. For example, in Guiana no Indian worships, though in a few cases, presently to be described, he avoids certain merely dreaded beings, or, if avoidance is impossible, he strives to frighten and drive them away. Again, when Mr. Dorman says that "the belief in the *resurrection of the body* was universal among primitive people," he makes a statement almost certain to be misunderstood; for the term "resurrection of the body" has acquired for us certain definite doctrinal associations, none of which belong to the Indian belief to which Mr. Dorman alludes. That belief is simply that there is an occasional, not universal as he intimates, return of the spirit to its body after it has, at its own pleasure and for its own purposes, left the latter. To quote one more instance, the term *creator* is one which expresses an idea undreamed by the Indians. For example, Mr. Dorman says that the cayote plays the rôle of the creator in the following legend: "He filled himself with

the water of Clear Lake, after eating a great quantity of grass-hoppers, and lay down to sleep, when he was thrust through with a spear, and all the water and grass-hoppers ran out and down into the lake basin, and the insects became fish." Here there is obviously no idea of creation but only of natural metamorphosis brought about by the habit of all beings to adapt themselves to new circumstances, that is, the grasshoppers finding themselves in the water began to swim, and so became fishes. And in another significant passage the same writer uses the terms "ancestor" and "creator" as synonomous ; which, though a common mistake, is not only an abuse of language, but shows that the writer has not fully realised the fact that the Indian has no idea of a beginning of things, of a creation, but only what is a very different matter of an eternal change of bodily forms.

3. It is as well to begin the study of animism by putting aside, as far as may be, all that knowledge of the physical and metaphysical condition of the universe which, having been accumulated during many centuries by our civilised ancestors, has been naturally inherited by us, and to attempt to realise the view which Indians themselves take of the world around them. Only when this has been done is it time to attempt to inquire how the simple and natural thoughts which are held by the Indians, could have gradually grown into the complex system of religious thought of civilised men. I shall therefore try to draw a picture of the world full of beings among which the Indian of British Guiana sees himself living.

Every Indian believes that he himself, and consequently every other man, consists of two parts, a body and a spirit. To one who has never given thought to such matters it may seem strange that a so-called savage should be able to form for himself any conception of a thing so immaterial as a spirit. Yet a little thought brings conviction that it is impossible that man, being rational and having once seen death, should fail to acquire such conception. When a man dies something goes, something is left. The survivors necessarily distinguish in thought between these two parts, and they call them respectively by some such names as spirit and body. A curious illustration of this is afforded by a saying of the Macusi Indians of Guiana, as they point out that at death the small human figure disappears from the pupil of a man's eye, that the spirit, the *emmawarri*, as they call it, has gone from out of him. This alone is sufficient reason to the Indian for belief in the distinctness of body and spirit, as the two parts which separate at death.

But it is not only in death that the Indian sees the two

separate. It is a platitude among civilised people to remark on the similarity between "death and his brother sleep." But great as the similarity is to us it seems far greater to the Indian. To us the similarity lies merely in the fact that in both there is rest from the work of this life: but to the Indian it lies in the fact that in both the spirit departs from the body, only to continue its labours under hardly altered circumstances. The dreams which come in sleep to the Indian are to him as real as any of the events of his waking life. He regards his dream acts and his waking acts as differing only in one respect; that the former are done only by the spirit, the latter are done by the spirit in its body. When the Indian, just awake, tells the things which he did while asleep, his fellows reconcile such statements with the fact that the sleeper's body was in their sight and motionless during the time of supposed action, by the thought that the spirit of the sleeper left him and went out on its adventures. The complete reality of this belief in dream life and of the unbroken continuity of this with real life was forcibly exhibited in many incidents which came under my notice. For instance, one morning, when it was important to get away from a camp on the Essequibo River, at which I had been detained for some days by the illness of some of my Indian companions, I found that one of the invalids, a young Macusi Indian, though better in health, was so enraged against me that he refused to stir; for he declared that, with great want of consideration for his weak health, I had taken him out during the night and had made him drag the canoe up a series of difficult cataracts. Nothing would persuade him of the fact that this was but a dream; and it was long before he was sufficiently pacified to throw himself sullenly into the bottom of the canoe. At that time we were all suffering from a great scarcity of food; and, probably owing to the fact that hunger seems especially apt to cause such dreams, similar events very frequently occurred. Morning after morning, the Indians declared that some absent man, whom they named, had visited their hammocks during the night, and had beaten or otherwise maltreated them; and they always insisted upon much rubbing of the supposed bruised parts of their bodies. Another instance was amusing. In the middle of one night I was awakened by an Arawak named Sam, the captain or headman of my Indians, only to be told the bewildering words, "George speak me very bad, boss; you cut his bits." It was some time before I could sufficiently collect my senses to remember that "bits" or fourpenny pieces, are the units in which, among Creoles and semi-civilised Indians, calculations of money, and consequently of wages, is made; that "to cut bits" means to reduce the

number of bits or the wages given; and to understand that Sam, as captain, having dreamed that George, his subordinate, had spoken impudently to him, the former, with a fine sense of the dignity of his position, now insisted that the culprit should be punished in real life. One more incident of this same Sam may be told for the sake of its quaintness, though it did not happen within my personal experience but was told me by a friend in whose employ Sam was for a time. This friend told his men, as they sat round the camp fire one night, of the Zulu war, which was then in progress, and in so doing made frequent use of the expression "to punish the niggers." That night, after all in camp had fallen asleep, they were roused by loud cries for help. Sam, who was one of the most powerful Indians I ever saw, was found "punishing a nigger" who happened to be of the party; having with one hand firmly grasped the back of the breeches' band of the blackman, he had twisted this round so tightly that the poor victim was almost cut in two. When the two had been separated Sam sturdily maintained that he had received orders from his master for this outrageous conduct; and on enquiry it turned out that he had dreamed this. Many similar stories might be added; but enough has been said to exhibit the firm belief of the Indian in the separability of the spirit during sleep. It must be added that this belief extends, not only to the idea that the spirit of the dreamer leaves him and does various acts, but to the further idea that the spirits of others, of whom he dreams, are really, not merely subjectively, present; for the Indian who, as frequently happened, woke in the night uttering loud cries and assertions that he was being beaten by some enemy, was never convinced of the fallacy of his belief by the fact that neither was his enemy present, nor could he have escaped in so brief a time. To such representations the injured man invariably answered that it was not the body but the spirit of his enemy which did the harm.

Not only in death and in dreams, but in yet a third way, the Indian sees the spirit separate from the body. Visions are to him when awake what dreams are to him when asleep; and the creatures of his visions seem in no way different from those of his dreams. A distinction may here be drawn, though it is not recognised by the Indian, between natural visions—those, that is, which appear to a man in consequence of the abnormal condition in which his body accidentally happens to be at the moment—and artificial visions, which appear to a man in consequence of the abnormal condition into which he has brought himself, by such means as fasting and the use of stimulants or narcotics, for the express purpose of experiencing visions. Innumerable instances

of natural visions are recorded from all other parts of the world where men live in a similarly primitive state; and, judging by analogy, such must commonly occur to the Indians of Guiana. Few instances, however, came directly under my notice. The most striking was the following. One morning in 1878, when I was living in a Macusi village, a party of Indians of the same tribe with whom I had had some dealings, came from their neighbouring village with the extraordinary request that I would lend them guns and would go with them to attack the Arecuna Indians of a village some twenty miles distant. Though there is an unusually strong feeling of hostility between the Macusi and the Arecuna Indians, this request, remembering how peaceful the Indians now generally are, seemed to me very strange. It was explained that a certain man named Tori, one of the suppliants, had a day or two previously been sitting alone on the savannah outside his house, when, looking up from the arrow-head which he was fashioning, he found some Arecunas, whom he knew by sight, belonging to the village against which war was now to be waged, standing over him with up-lifted war-clubs, as if about to strike him down. Tori continued to explain, that his shouts bringing his own people out of their houses, the Arecunas vanished without doing any harm. The story was utterly incredible, but after much cross-examination it was evident that Tori himself believed it, and I can only suppose that it was a case in which a natural vision was believed as a reality.

Artifical visions are much more frequent in Indian life, especially in one particular connection. The *peaiman* or medicine man, the priest, doctor, sorcerer, and prophet of Indian society, prepares himself for his office by a long course of fasting and solitude, of stimulants and narcotics, in order to acquire both power to raise himself into an ecstatic condition in which he is able to send his spirit where he wills, and power to separate the spirits of other men and other beings from their bodies. Fully to explain the system of *peaiism* here would take too long. All that need now be said is that it is based upon the belief that all illness and all other bodily evil is the work of hostile beings, who may or may not live in the bodily shape of men. These hostile beings may act in their bodily shapes; but attacks by disease being much more common than assaults by actual bodily enemies, the spirits are supposed to act much more often by themselves. Against attack by hostile spirits the ordinary Indian cannot protect himself. The peaiman is, therefore, appointed to the office of dealing with these spirits; and it is obvious that his body would be rather a clog and a hindrance than an assistance to his spirit. His chief problem is, therefore,

to separate, firstly, his own spirit; secondly, that of the patient who is suffering attack; and thirdly, those of the attacking beings, each from its body; so that the whole matter may be settled among the spirits. His chief method of doing this may be shown as follows:—

A Macusi peaiman offered to cure me of a slight attack of fever and headache. At night I was made to lie in my hammock in a completely closed and darkened house; and I was especially warned not to put foot to the ground, for malicious beings would be on the floor, and would do dreadful things if they caught me. For a moment all was still. Then suddenly the silence was broken by a burst of undescribable and really terrible yells and roars and shouts, which filled the house, and shook the walls and roof, and sometimes rose rhythmically to a roar and sometimes sank to a low distant-sounding growl, but which never ceased for six whole hours. It was the peaiman roaring out his questions and commands to many hostile beings, any one of whom might be the one who had attacked me; and it was these beings, who were yelling and shouting, and growling their answers. When, now and then, the voice all but died away for a few moments, the peaiman had passed up and out through the roof, and was heard, far off, compelling unwilling beings to come to the house where I lay. As a matter of fact, the whole long terrific noise came from the throat of the peaiman, who had worked himself into a state of marvellous frenzy.

The effect of all this upon me was very strange. Before long I passed into a sort of doze and fitful sleep or stupor, probably akin to mesmeric trance. Incapable of voluntary motion, indeed unconscious of the existence of a body belonging to me, I seemed to float in the midst of a ceaselessly surging din; and my only thoughts were a hardly felt wonder as to the cause of the noise and a gentle, fruitless effort to remember if there had once been a time before noise began. It now seems to me that my spirit was really then as completely separated from my body as is possible under any other circumstances short of death.

That the peaiman himself believes in the separation and occasional departure of his own spirit from his body would not be easy to prove; but after much enquiry from these practitioners, I am fully persuaded that in this, as in so many similar cases, the man partly believes, partly feigns to believe, in his own practice. But—and this is the important point—that the other Indians believe in the departure of the spirit of the peaiman is certain; and that not the body is supposed thus to depart was made very plain in this way. Expressing scepticism as to whether the peaiman really went away through the roof, I on one occasion asked to be allowed to fasten one end of a thread to the

body of the peaiman, that, holding the other end in my hand, I might through the thread be satisfied of the occurrence. The answer—which was given quite naturally—was that the body remained; and that it was "something inside him" that went up.

All this shows that the Indian believes not only in the existence of a spirit within the human body, but also in the separability of those two parts.

The next point to be observed is how easily the spirit separates from the body even during life, how loose is the connection between the two. The being may pass its spirit from its own body into that of any animal or even into any inanimate object as a temporary body. This takes place especially in the case of *kenaimas*. The kenaima is the avenger of injury. In Indian society the mutual rights of individuals are guarded, and crime is kept in check, by the high sense of the imperative duty of retaliation. He against whom or against whose near relative wrong has been done, intentionally or unintentionally, by any other Indian becomes a kenaima who follows to kill or injure the wrong-doer. All injury which befalls an Indian is regarded by the sufferer as the work of a kenaima, as vengeance for some known or unknown injury committed by the sufferer. Now the kenaima, while following his intended victim, does not necessarily retain his own bodily shape, but assumes at his convenience the form of any animal or inanimate object. Very often the form assumed is that of the most dangerous animal known to the Indian, the jaguar, or, as it is locally called, the tiger. The expression kenaima-tiger is often heard from Indian lips, in such sayings as, "I can kill a tiger, but how can I kill a kenaima-tiger?" In that case the spirit of the kenaima puts itself into the body of another animal. Very often, also, it assumes some inanimate object as its body. For instance, the peaiman, in his capacity of doctor, extracts from the body of his patient a stick or stone, which is said to have been the cause of the disease, or, in other words, is the bodily form into which the spirit of the kenaima has passed in order to penetrate into the victim. It is true that apparently no individual Indian, unless, perhaps, a peaiman, believes that he himself can at will pass his spirit into another body—though, by the way, cases of this form of self-deception have been noted from other parts of the world. Apparently, however, the Indian of Guiana believes, not that this power of transmission does not exist within him, but only that he does not know how to exercise this power; and, fully recognising how loosely spirits are attached to bodies, he supposes that other men have the requisite knowledge which he has not.

4. So far we have examined Indian animism only as it is exhibited in a belief in the spirits of men. But the fact that I began by speaking of the spirits of men was only because man, whether he be Indian or other, naturally begins by thinking about himself; nor must the fact be understood to indicate that the Indian sees any sharp line of distinction, such as we see, between man and other animals, between one kind of animal and another, or between animals, men included, and inanimate objects. On the contrary, to the Indian, all objects, animate and inanimate, seem of exactly the same nature, except that they differ in the accident of bodily form. Every object in the whole world is a being consisting of a body and a spirit, and differ from every other object in no respect except that of bodily form, and in the greater or less degree of brute power and brute cunning consequent on the difference of bodily form and bodily habits.

Really to grasp this entirely natural conception of primitive man, the civilised student must make a great effort to forget for a time all that science, which is based on the distinguishing and the classification of differences, has taught of the differences between the objects which fill the world. It is very difficult to us to realise the Indian conception even of the identity in all but bodily form of men and other animals, and it is still more difficult to realise that the Indian conception is wider even than this, in that it admits of no difference, except again in bodily form, between animate and inanimate objects.

The very phrase "men and other animals" is too often loosely expressed as "men and animals," thus showing how far above other animals civilised men habitually think themselves. It is most important, therefore, to realise both how comparatively small really is the difference between men in a state of savagery and other animals, and how completely even such difference as does exist is ignored in the thoughts of savage men. On the one hand, the differences which really do exist, the mental potentialities, are just such as entirely escape the notice of uncivilised man. On the other hand, in skill, in cunning, in courage, in social morality, as based on fear and not on any knowledge of right, which are the chief things recognised and valued by the Indian mind, there really is no great difference between savage men and other animals. And it must be remembered, that almost every Indian knows the ways and cunning of the animals around him better than even the two or three civilised men most learned in such matters even guess them. To the ear of the savage, animals certainly seem to talk. Countless Indian stories, fully believed, introduce the sayings of animals. And though the individual

Indian knows that he no longer understands the language of the beasts and birds around him, he attaches but little weight to this, in that he is constantly meeting with other Indians, of some one or other of the many alien tribes which surround him, who speak languages at least as unintelligible to him as are those of birds or beasts; and in that, as he is fully persuaded, he constantly hears his own peaiman still converse with these birds and beasts. Moreover, just as the Indian sees in the separation which takes place at death or in dreams proof of the existence of a spirit in man, so in this same death analysis of body and spirit, and in the animals which play their part in his dreams, he sees proof of the existence in each animal other than man of a spirit similar to his own.

The mental attitude which sees a spirit in each inanimate object is less easily realised. Belief in the spirits of plants is probably closely connected with the similar belief concerning animals; there is a vitality in plants which disappears at death, and this vegetative life is evidence of the presence of a spirit. There is not the same evidence of the presence of spirits in such objects as rocks and stones, in which neither animal nor vegetative life is manifested. It might be thought that this bodily motionlessness would prevent any conception of the possession of spirits by such objects. But to the Indian mind this absence of motion is less striking than it would otherwise be, owing to the fact that the comparison is made, not directly between animals, with their most free power of bodily motion, and rocks and stones, with no such power of motion, but indirectly through plants which are intermediate in this respect in that, their branches swaying, they have some small apparent power of bodily motion. Moreover, the Indians, always reasoning in the first place from what he knows of himself, remembers that, as, for example, in dreams, his own spirit moves most actively even when his body lies motionless; and he therefore sees no reason to doubt that the spirit within the motionless rock is active also. And the activity of this spirit of the rock is proved to his satisfaction in various practical ways. The Indian is occasionally hurt either by [falling on a rock or by the rock falling on him; and in either case he attributes the blame to the rock. In fact, he attributes any calamity which may happen to him to the intention of the immediate instrument of its infliction; and he not unnaturally sees a spirit in this instrument. Then he carries this line of argument yet further. If his eye falls on a rock in any way abnormal or curious—and none such escapes his notice—and if, shortly after, any evil happens to him, he regards rock and evil as cause and effect: and here again he perceives a spirit in the rock. In very dry

seasons, when the rivers are low, the exposed rocks are seen to have a curious vitrified, black appearance, due to deposits of oxides of iron and manganese. Whenever I questioned the Indians about these rocks I was at once silenced by the assertion that any allusion to their appearance would vex them and excite their hostility. Again, the many rocks on which are so-called petroglyphs, or rock-drawings, are regarded with especial awe. It is unnecessary to multiply instances, further than by saying that every rock and, indeed, every material object, however different its body, is supposed to possess a spirit such as that of man.

But after all such arguments as those just given, by which it seems probable that savage man strengthens his belief in the presence of spirits in all objects, are not primitive.

The belief of the primitive man in this universal possession of spirits is probably of a much more simple and natural kind. It was acquired by the Indian, not by asking himself which of the objects existing around him were animate, but rather by his never doubting that, like himself—like, that is, the only object known to him by personal experience—all other objects had bodies and spirits. In fact, the primitive idea naturally is that all objects are animate; and then, as scepticism begins to grow, and primitive men begins to question whether stones have spirits and power of action, then the more orthodox and conservative probably strengthen their faith in the old belief by such arguments as those given above concerning the apparent action of stones.

One other class of beings possessed of spirits must yet be added to complete the list of those which, to the Indian, fill the world. At present we have observed only such spirits as are embodied in objects, animate or inanimate, which really exist. But the Indian knows also of various beings consisting of spirits placed in such animal bodies as civilised men know to be fabulous. Perhaps the nature of these beings is best made clear by saying that they correspond very closely to the dragons, unicorns, and griffins, and to the horned, hoofed and tailed devils of our own folk-lore. Of this kind are, the "di-di," or water-marna, a being with a body not well described, who lives under water; the "ornar," a similar being, with a body said sometimes to be like that of a gigantic fish, sometimes like that of a huge crab, at other times to be of various other forms, but which also lives under water, especially in rapids and cataracts; and there are also various other not easily definable beings which are of this class. Their chief interest lies in the fact that in the Indian mind there is not the slightest distinction, except in bodily form, between these and all the other beings which have been

described. Our knowledge of the fact that the bodies of such beings do not really exist, inclines us to regard them as somewhat more supernatural. But this knowledge of ours is derived from science. The Indian, being without sufficient even of the rudiments of the scientific habit of thought, is as fully prepared to believe in the real, not supernatural, existence of a being as impossible as was ever fabled, as in that of animals most usual to him. In short, to the Indian, the only difference between these monstrous beings and all other beings is that, while he has seen the latter, he has not himself seen the former, but has only heard of them from others.

5. We have now reached a point at which it is as well to recall all that we have learned. The Indian believes that every object perceptible to his senses has a body and a spirit; he sees that the bodies of these differ very considerably in shape, and he has not the slightest reason to doubt the existence of bodies of quite infinitely various shapes. No idea of that which we call the supernatural is known to him. Thus his whole world swarms with beings. If by a mighty mental effort we could for a moment revert to a similar position, we should find ourselves everywhere surrounded by a host of beings, possibly hurtful, so many in number that to describe them as absolutely innumerable would fall ridiculously short of the truth. It is, therefore, not wonderful that the Indian fears to be without his fellow, fears even to move beyond the light from his camp fire, and, when obliged to do so, carries a fire-brand with him that he may have a chance of seeing the beings among whom he moves. Nor is it wonderful that occasionally the neighbourhood of their settlement seems to the Indians to become so oppressively full of gathering beings, that the peaiman, who has the power of fighting these beings, even when they are invisible, is employed to effect a general clearance of the air.

That is the simple form of animism which prevails among the Indians of Guiana; and it is almost certainly the same that has been held by every people while passing through a similar early stage of civilisation. It is the earliest recognisable rudiments from which, by subsequent modification and development, religion in all its higher forms has grown.

6. Animism, then, is recognition of the existence of spirits: and religion, to use the word in its widest sense, is the mental attitude which men hold toward these spirits. According as men take a more exalted view of the nature of spirits, their religion is of a higher order. Having already gained some knowledge of how far the Indians of Guiana recognise the existence of spirits, it now remains to examine their attitude toward these spirits. We shall find that the attitude is very

low; or, in other words, that religion among them is in one of its very earliest stages. It must, however, not be overlooked that religion may possibly have advanced, among the ancestors of some of the present Indian tribes, to a point higher than that at which it now stands; and that it has since reverted to an earlier form. It is quite possible, for example, that the old Caribs may have had a higher conception of spirits and of their own relation to the spirit-world than that which the Caribs of Guiana now have.

7. It will, perhaps, be easiest to proceed by examining how far certain of the chief modifications by which, among all more civilised societies, animism has developed in the direction of higher religion are discernible among the Indians of Guiana. These modifications are—(1) acknowledgment of the everlasting, as distinguished from the mere continued existence of the spirit after the destruction of the body; (2) a belief in a separate place of abode for the spirit when separate from the body; and closely connected with this, a belief in the reward or punishment of the spirit for the good or evil deeds which it did when in the body; (3) a belief, which has arisen but very gradually, in higher spirits, and eventually in a Highest Spirit; and (4) keeping pace with the growth of these beliefs, a habit of reverence for, and worship of spirits. All these additions to animism spring from germs which appear in early stages of civilisation, and grow as the people advance in other matters. We shall find that none of them have as yet made much progress among the Indians of Guiana.

It is as well here to state that the key to the whole matter, as regards these Indians, lies in the fact, to which allusion has already more than once been made, that these people look on the spirit-world as exactly parallel to the material world known to them. Spirits, like material beings, differ from each other only in—if the phrase is allowed—their varying degrees of brute force and brute cunning, and none are distinguished by the possession of anything like divine attributes. Indians, therefore, regard disembodied spirits not otherwise than they regard the beings still in the body whom they see around them.

8. There has been great confusion between, on the one hand, the simple animistic belief in the continued existence of the spirit after the separation of the body; and, on the other hand, the doctrine of the everlasting existence of the spirit which the higher religions have founded on that simple belief. The merely continued existence, for a period the duration of which the mind of the savage man makes no attempt to determine, is implied in simple animism. After death, as we have seen, the spirit appears in dreams to the survivor; and it is therefore believed

still to exist. Moreover, it would be a very unnatural thing if the primitive man had any idea of the annihilation of the spirit. That a thing the existence of which he has once seen should cease to exist, or that a thing should come into existence which just before had no existence, are both events which would be quite opposed to his simple conception of natural law. There are naturally many traces among the Indians of Guiana of a belief in the continued existence of the spirit. It is sufficiently indicated by their habit of burying their dead, with the hammock and possibly other utensils which the deceased used during life in their houses: for this indicates a belief that the dead man will still use his home and hammock. That the houses in which such burial has been made are then deserted by the survivors is due to the natural objection of the living to dwell among the dead. It is instructive to notice that the Indians of the savannah, whose houses are of a much more substantial kind than those in the forest, have relinquished their ancestral habits and bring their dead outside their houses, that they may not have to abandon buildings, the erection of which has cost so much labour. Yet neither these nor any other recorded facts indicate that the Indians realise that the existence of the spirit is everlasting. That is a doctrine which belongs to a very much higher stage of religion. And where missionaries and others claim to have discovered traces of it among the Indians, they have merely mistaken the quite primitive conception of the continuance of the existence of the spirit for the doctrines elaborated by civilised minds, of its everlasting existence. In this one particular point, therefore, the Indians of Guiana are yet in the simplest observable stage of animism.

The spirit continuing to exist after the separation of the body, the question naturally arises as to what, according to Indian belief, becomes of such separated spirits. This question when worked out during many ages by the methods of the higher religions finds its answer in heaven and hell, or, in other words, of a place of abode for such spirits away from the world, and of the reward or punishment of spirits in that place. But the Indians, having not yet begun to ask themselves that question, think that disembodied spirits remain, as before, on earth, unpunished and unrewarded. Sometimes there seems to be some idea of the transmigration of the spirit into a new body, as when the spirit of a deceased ancestor is recognised in a newborn child or in some other animal. Sometimes, again, the spirit is merely supposed to remain disembodied on earth. Yet Indians have some idea of a place above the sky, "a heaven, floored upon a firmament" (Tylor "Prim. Cult.," ii, 69). In their folk-lore mention is often made of such a place. For

instance, the Caribs say that they arrived in Guiana through a hole in the sky, from a place above. This place is more often mentioned as that from which men come, than as that to which they go; but the spirits of their hero ancestors are sometimes said by the Indians to have gone to this place. The spirits of Indians in general are certainly not supposed to go there. This is just one of the cases in which our own deeply engrained and popular notion of a heaven above the sky makes it difficult for us to realise the Indian conception. The Indian idea seems to me to be that beyond the sky, just as beyond the sea, there is nothing akin to our heaven, but another country just such as that in which they live. The ordinary Indian knows that he cannot go beyond the sea; yet he occasionally sees other men come thence, and he hears from these of lands beyond those waters impassable to him. So he sees an apparently firm sky, separated by an ocean of air impassable to him, to which, though he cannot go, he sees birds go, and even as he thinks, sees the spirits of his peaimen go, and which he therefore thinks is a country, just such as that he knows, and attainable under certain conditions. His legends tell him that men have before now climbed down by bush ropes or by tall trees from sky-land; and he thinks it quite possible that he or his fellows may some day find another tree piercing the clouds, or a high hanging bush rope up which he may ascend to skyland. In other words, his notion of going to heaven is, not by apotheosis but by entirely natural means of travel. This is another point in which missionaries and other early observers have unwittingly introduced much confusion; for they have misinterpreted facts until they thought that Indians believed not only in a heaven such as that of the higher religions, but also in the allotment in heaven, or in hell, which is below the earth as heaven is above, of reward or punishment. The matter is admirably illustrated by a passage from Rochefort, "Iles Antilles," p. 430, (quoted by Tylor, "Prim. Cult.," ii, 79), in which he says of the Caribs of the West Indies, who were the ancestors of those now in Guiana, that they thought that their brave men would live after death in happy islands with once hostile Arawaks as their slaves, but that the cowards of their own tribe would, on the contrary, serve the Arawaks in the barren land beyond the mountains as slaves. Read by itself this passage certainly seems to indicate that the Indians believed in a heaven and hell, and in retribution. But let us see what further light can be thrown on it. At the time when Rochefort wrote, the Caribs and Arawaks lived in a constant state of mutual hostility, and were really in the habit of enslaving each other, Moreover, there is strong reason to believe that the Caribs had at that time

already taken possession of the West Indian Islands, from which they had driven the earlier inhabitants, the Arawaks, to the mountainous mainland opposite. From the islands the Caribs were in the habit of making raids into the inhospitable country of the Arawaks whom, if successful, they brought away as slaves, by whom, if unsuccessful, they were retained as slaves. When, therefore, the Carib said that if he were brave he would live in happy islands with Arawaks for slaves, but that if he were a coward he would live beyond the mountains a slave to some Arawak, he was only describing as his notion of future life exactly the state of things to which he was accustomed in this life; nor did he indicate any conception of heaven, hell, or retribution after death. It must be added that the Indian notion which I have described of skyland, and that other notion that by his conduct when in the body he may himself effect the happiness of his spirit, are probably primitive germs from which the higher religions have elaborated heaven, hell, and retribution.

The next point to be considered is as to whether Indians believe in any hierarchy of spirits, such as that which forms so important a feature in the higher religions. There is nothing to indicate that Indians believe in any spirits, except such as are or were once situated in material bodies, and differ in rank and power only as one man differs in these respects from any other. As religion grows, this early form of belief develops into a recognition of higher spirits and lower, until in the highest form of religion a belief in one Supreme Spirit is attained. But on this belief, at a very early stage in the transition which it thus makes, is engrafted the very important idea of spirits, many or few, which have always been spirits and never specially associated with any material body. Until the point at which this new idea is engrafted it cannot be said that there is any belief in a spiritual hierarchy. The Indians of Guiana have not yet attained this belief; they only know no spirits but those of men or other material bodies, and have no conception of any that are only or chiefly spirits, *i.e.*, they know no god.

The process by which the idea of a difference in the authoritative rank of spirits is attained seems to be by a generalisation of those spirits of equal power which form the earlier subject of belief—*e.g.*, the belief in a separate spirit in each body of water, river, spring, rain, sea, or whatever its nature, probably passes by generalisation into a belief in one more powerful water-spirit. It will presently be shown that the Indians of Guiana have made hardly any advance even in this direction. The process by which the first idea is gained of gods, of beings, that is, who have always been spirits, except when temporarily and for their

own purposes they have put themselves into bodies, and who in some, if not in all cases, have had some share in the creation of man and the visible world, is not so easily explained; but this is of little consequence here since all that is necessary is to show that the Indians have not yet attained any such notion.

The idea of a difference in the authoritative rank of spirits is not yet discernible in Guiana. It is, indeed, fully recognised that some spirits are more to be feared than others, in that some excel in physical power or cunning. For instance, the spirits of all rocks are supposed to be capable of harm; but again and again I have come across instances in which special rocks, such as the famous sculptured rocks, are more especially dreaded. But this is only because such rocks are more malignant. The matter may be made plain in this way. Not every river, but every bend and portion of a river, has a spirit; and though all these are regarded as possibly harmful, in that Indians have been drowned even in still water, yet the spirits of the falls, cataracts, or rapids are more especially dreaded, in that Indians have been much more frequently drowned in such places. But this idea of a difference in the degree of brute power or malignancy in various spirit-possessed objects is quite distinct from any belief in the possession by certain spirits of authority over other spirits and, consequently, indirectly of greater authority over men. The latter belief, which may be ticketed as a belief in a hierarchy of spirits, seems totally absent from the Indian mind.

It has been presumed that traces of a belief in such a hierarchy have been found among other peoples, in their recognition of a sun-spirit, a moon-spirit, a water-spirit, and so on. Such spirits are certainly recognised in Guiana. On one occasion during an eclipse of the sun the Arawaks, among whom I happened to be, rushed from their houses with loud shouts and yells, and with frantic gestures, to separate, as they explained, the sun and moon which were fighting. But, at least as far as the Indians of Guiana are concerned, I do not believe that they distinguish such beings as sun and moon, or such other natural phenomena as winds and storms, from men and other animals, from plants and other inanimate objects, or from any other beings whatsoever. All are of the same kind, each with a body and a spirit, and they differ from each other only in that some are physically more powerful than others; nor have any of them any sort of authority over any others.

But it is true that various words have been found in all, or nearly all the languages of Guiana, which have been supposed to be names of a Supreme Being, God, a Great Spirit, in the sense which those phrases bear in the language of the higher religions.

These names, as far as they are known to me, are—

Carib Tribes:
- True Caribs:
  - Tamosi = "the ancient one."
  - Tamosi Kabotanō = "the ancient one in sky-land."
- Ackawoi, Mackonamia (?)
- Macusi, Kutti (probably only corrupt for Dutch, *gott*).

Arawak:
- Wa murreta kwonci = "our maker."
- Wa cinaci = "our father."
- If-lici wa cinaci = "our great father."

Warrau. Kononatu = "our maker."

Waprana. Tomingatoo (?)

It will be seen that of these I am only able to explain the exact logical meaning of the two true Carib words, of the two Arawak words, and of the Warrau word. In these words only three ideas are expressed: and these are (1) one who lived long ago and who is now in sky-land; (2) the maker of the Indians; and (3) their father. Now none of these in any way involves the attributes of a god. They all point rather to a conception, which is certainly present in all Indian minds, that their remote ancestors, of whom they are accustomed to speak as their fathers, or by a very natural figure of speech, as their makers, came into their present homes from some other country, which is sometimes said to have been that entirely natural country which is separated from Guiana by the ocean of the air. When these same ancestors are said still to exist in that other place, this only means that those in particular have recrossed the sea of air back to the old country. Thus these supposed gods are probably but the traditional ancestors of each tribe. Moreover it must be remembered that these words expressing gods were first noted by missionaries, and were eagerly seized upon by them and used, as was natural, to express the God which they themselves preached.

To repeat what has perhaps been said wearisomely often already: there are, according to Indian belief, no spirits but such as either are or originally were embodied in material bodies; and no apotheosis has of these made gods or a god.

Once more, however:—in the idea of ancestral spirits still existing, there is a germ which might under certain circumstances develop into that leading conception of the higher religions, the conception of a fatherly and creating God.

One other subject claims mention in connection with Indian animism. In all systems of religion, belief in spirits and worship of spirits are two very distinct things, though the fact that in the higher religions the two are found almost invariably associated has induced civilised men to regard them as nearly

inseparable. But in a purely animistic system of religion, such as that with which we are now concerned, in which no hierarchy of spirits is recognised, there can be no worship, in that the latter implies reverence and adoration.

To understand the matter as it is exhibited in Guiana, it is necessary to recall the attitude of the Indians toward spiritual beings. There are, it is thought, no spirits except such as differ only according to their greater or less degree of physical power, and of these some are harmless, others are harmful; but while the harmful spirits are very active in their power of affecting men, the harmless are perfectly and entirely inactive in this respect. It is somewhat difficult to realise this Indian view. All that can be said of it is, that all the good that befalls him the Indian accepts either without enquiry as to its cause or as the result of his own exertions; and that all the evil that befalls him he regards as inflicted by malignant spirits. Accordingly the Indian performs no acts to attract the good-will of spirits; but he does constantly so act, and so avoid actions, as to avert the ill-will of other spirits. For example, he is, as has been told, careful not to look at, or even to mention certain rocks and other objects. In this connection, one universal and very common custom of the Indians of Guiana is very noticeable. Before attempting to shoot a cataract for the first time, on first sight of any new place, every time a sculptured rock or striking mountain or stone is seen, the Indians avert the ill-will of the spirits of such places by rubbing red-pepper (capsicums) each into his or her eyes. For instance, on reaching the rock in the Corentyn river, called from the sculpture on it, Temehri, the Indians—men, women, and children—from 20 to 30 in number—who accompanied me, immediately busily began this painful operation of pepper-rubbing. The extreme pain of the operation as performed thoroughly by the Indians, I can faintly realise from my own sufferings when I have occasionally rubbed my eyes with my fingers immediately after handling red pepper; and also from the fact that, though the older practitioners inflict this self-torture with the utmost stoicism, I have occasionally seen the otherwise rare sight of Indians—children and even young men—sobbing under the pain of the infliction. Yet I never passed a cataract, or any other of the objects above mentioned, in the company of Indians, without seeing this ceremony performed. Sometimes, when by a rare chance no member of the party had had the forethought to provide pepper, lime-juice was used instead; and once, when neither pepper nor limes were at hand, a piece of blue indigo-dyed cloth was carefully soaked, and the dye was then injected in the eyes of the whole party. The whole ceremony is an attempt to avoid attracting

the attention of harmful spirits. If it is absolutely necessary to pass a bad rock or a spiteful cataract, these objects are not mentioned during the passage, are not looked at more than is necessary, and artificial means, such as blinding the eyes with pepper-juice, are even used to avoid the dreaded sight; for just as, according to the old story, the ostrich which has covered its own eyes thinks itself hidden from its pursuers, so the Indian, having prevented himself from seeing a harmful being, thinks that the latter does not see him. This habit of avoidance of dreaded beings forms the only ceremonial observance practised by the Indians.

9. In conclusion, two things remain to be noted. First, that the animism of the Indians of Guiana is of a very pure kind, and unaffected by any of the modifications which change animism into higher religion. And, secondly, that this animism of Guiana, as probably in more or less degree that of the whole of America, is of a very much more primitive kind than has as yet been suspected by students of religious evolution.

Discussion.

Mr. Pfoundes said that if the author could afford information as to the existence of human sacrifice and similar rites, it would be of value. He remarked that this interesting paper was a contribution to folk-lore of all the more importance coming as it did from one who had resided amongst the natives. It furnished another link in the long chain of evidence of the primitive condition of the peoples on both sides of the North Pacific, and to the comparative student of folk-lore it was most useful.

Mr. James Heywood deemed it probable that the Indians of British Guiana had a higher object of worship than the spirit of the sun or the spirit of the moon. Dutch missionaries may have taught some of those Indians the Dutch name for the Deity, but the worship of the Great Spirit is wide-spread among American Indians. The speaker was acquainted with religious opinions of the Six Nations' Indians, in the Tuscarora Reserve, County of Brant, Canada West, and their epithet for exalted, or immensely extended, was "great:" thus they termed Queen Victoria the "great mother," and the ocean was the "great water." With the North American Indians generally the Deity is the "Great Spirit," whom they worship. Similar opinions, according to the works of various North American writers, prevail in different parts of the United States of North America, among the Indians. It seems reasonable to suppose that religious views of a like kind may have existed from very remote antiquity among the Indians of the northern part of South America.

Dr. Hack Tuke remarked that there were two facts stated in the paper which more especially interested him: one was the extraordinary fear which the Indians of Guiana entertained for

invisible agencies. He thought we often overlooked the real mental suffering which savages endured from this dread of spirits. We were too apt to associate fear of this kind exclusively with the fanaticism and superstition of religions of more civilised nations. With the people of Guiana, therefore, this belief must exercise a very considerable influence upon their minds, and was calculated to overthrow their balance in some instances. The other point was the vivid reality of their dreams. This was a most curious fact; and he had little doubt that the same confusion—the same inability to distinguish between dreams and the actual occurrences of life happened with certain of the insane. It was not at all uncommon for lunatics to assert, in the most positive terms, that various things had befallen them in the night, that they had been assaulted, &c., and the foundation of these delusions was, he thought, often laid in vivid dreams, which to them were as real as they appeared to be with the Indians of Guiana. There was no reference in the paper to the insane in Guiana, and he should like to ask the author whether he had met with any, or with idiots. If so, were they regarded as possessed by evil spirits, or looked upon as the special favourites of heaven? There was one more point on which he should like to be informed. Was there no crime of witchcraft recognised in Guiana? Were not witches punished for their supposed malignant influences? So far as he had been able to gather from this paper, which was one of the most interesting he had ever listened to, the fears of the people were directed towards invisible powers only, and not to persons supposed to be in league with them.

Mr. R. W. Felkin observed that the author had mentioned that the Indians are in the habit of taking with them a lighted firebrand when leaving a camp at night, for the purpose of frightening away the spirits. He should like to ask him if there were any other practical object in so doing, such as lighting up the path, or as a mark that they belong to the camp. He asked this question because in his journey in Central Africa he had often seen this done by the natives. On enquiring why, he was told it was to frighten away the devil, but he found on further enquiring, that the custom arose from a rule, that a firebrand must be taken by anyone leaving the camp at night to show the watchman on his return that he belonged to the camp, and was neither an enemy nor a thief.

Professor Flower, Mr. A. L. Lewis, Mr. G. M. Atkinson, M. Bertin, and Mr. J. Park Harrison also joined in the discussion.

Mr. im Thurn, in answer to various questions addressed to him, stated that his study of animism had been but a part of the Indian social history, regarded as a whole, and that he had had some difficulty in confining the remarks just made by him strictly to animism. He was now asked whether he had found any traces of stone circles, of human sacrifice, of rock inscription, of magic, and so on. No doubt all these and many other matters were more or less directly connected with the religion of the Indians; but time

failing, he must refer his questioners to a series of papers dealing with all these matters which he had already placed in the hands of a printer. There was just one point on which he would like to make further remark. And that was that several of those who had spoken after his paper had referred to the terrible evil of the state of superstition in which the Indians were described as living. He wished to point out that there was also good in this superstition: that the fear in which the Indians lived of unwittingly offending the countless beings visible and invisible among which they felt themselves to be, kept them very strictly within their own rights and from offending against the rights of others.

On the DISCOVERY *of* CHERT IMPLEMENTS *in* STRATIFIED GRAVEL *in the* NILE VALLEY *near* THEBES.

By Major-General PITT RIVERS, F.R.S., President Anthrop. Inst.

[WITH PLATES XXVII TO XXXVI.]

(A Paper read before the Institute on June 14, 1881.)

HAVING paid a hurried visit to Egypt in March of the present year (1881), my attention was naturally turned to the question relating to the occurrence of flint or chert implements in the Nile valley. The subject, as Anthropologists are aware, has been much discussed of late, and its importance arises from its special bearing on the antiquity of man. Our own journal has contributed its quota to the controversy, and the papers by Sir John Lubbock, Mr. Jukes Browne, Captain Burton, and others are well known to members of the Institute.

I will not ask the Institute to follow me in reviewing the history of this discussion, the materials for which are to be found in the papers I have alluded to, and many others by men of equal ability, a list of whose names would alone suffice to prove the great attention and research that have been brought to bear upon the subject.

Perhaps the present state of the question may be best summarised by quoting the opinion of Sir John Lubbock, one of the latest contributors to the archæology of the stone age in Egypt.

After carefully examining the various sites in which implements have been found on the surface in the Nile valley, and making a large collection of them, he came to the conclusion that their forms mostly resembled those of palæolithic implements found in Europe, and that they were probably pre-Egyptian. This, however, being an argument based upon resemblance of form only, cannot be considered conclusive, and Captain Burton, who followed Sir John in an examination of the sites

though favouring the same view, still leaves the question open so far as date is concerned. It is unnecessary to remind the Institute that the doubt in this matter arises from the known fact that the Egyptians used flint implements in embalming and for ceremonial purposes, and consequently it has been supposed by some, that when the *débris* of flint implement-making (*ateliers*) are found on the surface in the neighbourhood of tombs it indicates nothing more than the manufacture of flints for this object. The enormous number of these workshops might, however, be used as an argument against their having been employed for this purpose alone. Sir John observed that flint flakes were found only on the slopes of the hills above the level of the inundations, and that in the neighbourhood of the temples in the plains they were wanting. My own observation confirms this fact. I found few, if any, traces of the manufacture of flints around Karnac or Abydus, whilst they were abundant near Koorneh and Asyoot, at the foot of the Lybian range. But then the question might suggest itself:—If the flints were used for embalming, might not their presence above the line of the inundation arise from the position of the tombs which are all cut in the hill sides ?

Figs. 1, 2, and 3, Plate XXVIII, are illustrations of chert implements found by me on the slopes of the hills near Asyoot, in the vicinity of the tomb of Meri-ka-ra, a dignitary of the XIIIth Dynasty. Fig. 1 appears to be a kind of edged tool, sharp at the bottom and reduced to a tang at the top. Fig. 2 might be a hammer or an agricultural tool; it is also trimmed at the top for insertion into a handle or haft of some kind, Fig. 3 is a flake. The stone of the hill is limestone, and the chert flakes and tools which are found in the neighbourhood must have been imported from the interior. Such tools as are represented in the plate might have been used in excavating the tombs, but there is no proof of it; they might equally have been brought to the place in pre-Egyptian times.

In the limestone of Asyoot, as well as the sandstone at Thebes, I ascertained by experiment that the hieroglyphics can be easily worked with flint. When first excavated, the limestone is easily cut with flint or chert, but it hardens by exposure. At Thebes, also, I picked up a piece of sandstone, which had fallen off the Temple of Koorneh, and a chert flake that was lying beside it, and with the latter I first squared the sides of the stone, then smoothed the face of it, and afterwards, taking the point of the same flint, I cut upon it a human head and shoulders which might almost be taken for an Egyptian original, completing the whole in about twenty minutes. Indeed, I believe that when properly hafted no better material could be employed for

the purpose than flint or chert which by fracture in use renews its own edge as work proceeds.

Of the use of metal in squaring the large blocks, there is abundant evidence on some of the Theban monuments. The marks of chisels about 0·8 inches (0·02 m.) in width, which from their uniform size could be of no other material than bronze or iron, can be traced all over the blocks. The successive blows of a hammer are shown by cuts succeeding each other at the distance of 0·4 inches (0·01 m.) from edge to edge, and some of these Mr. Campbell and myself traced underneath the paint or plaster on the columns at Medeenet Haboo. The plaster flaking off retained the casts of the chisel marks upon its under side. But it is remarkable that on the faces of the inscribed parts, and in the hieroglyphics, we could find no tool marks after lengthened search, and with the result of the experiment which I have mentioned fresh upon my mind, I came to the conclusion that the hieroglyphics might very possibly have been made by scraping with a flint, thereby meeting the views of those who believe with Mariette Bey, Mr. Chabas, and others, that flint may have been used by the Egyptians for certain purposes, but by no means negativing the opinion held by Sir John Lubbock and other prehistorians, that they belong more especially to prehistoric times. Indeed, the fact of their having been employed by the Egyptians for embalming and other purposes connected with the dead, lends confirmation to the view that they may have been so employed as survivals dating back to a time when no other material was known, mortuary customs being at all times and in all places those in which the reminiscense of bygone ages are most likely to be found.

When at Luxor I was taken by Mr. Campbell to a little knoll called Gebel Lahamare, about a mile north-east of Koorneh, where a large number of flakes are to be seen on the surface. They occupy the whole of the hill, and from the fact of the greater part of them being fractured or flaked by hand, I have little doubt that they must have been conveyed to this spot for the purpose.

It is remarkable that amongst the enormous number of flakes which cover the surface at this spot, we scarcely found one which had marks of secondary chipping, whilst on the raised plateau called Gebel Assart which lies between this and Koorneh, the surface, equally thickly strewed with flakes, was covered with flakes which had secondary chipping on their sides and edges. This shows a difference in the purpose of the manufacture in the two places, but in neither of them did I find a single perfect implement.

Fig. 4, Plate XXIX, a good example of a small tongue-shaped

palæolithic type, was found on the lower ground nearer the highest flood mark, and fig. 5, Plate XXIX, resembling somewhat a neolithic celt, was found in the waddy (A.B., Plate XXVII), to be hereafter mentioned. Fig. 6, Plate XXX, is a specimen of a hollow scraper used for rounding and planing the surface of wooden sticks or shafts,* and was the only worked tool I found at Gebel Lahamare. This form of tool I have before identified with palæolithic forms at the palæolithic station at Bois du Rocher, near Dinan, in Brittany. I there found a number of them of smaller size, the other forms at that station being invariably palæolithic. It will be seen by examining the two sides of this flint represented in A and B (fig. 6, Plate XXX), that on the side A, the facet which contains the concavity which has been used as a plane for round surfaces is quite smooth, whereas on the other side B, it is worked in innumerable chips and minute facets. This has doubtless been produced by use, the flint having been drawn along the stick from the side A to the side B, thereby producing facets on the side B only, and causing the bevelled edge represented at D in the section C.

Before quitting the subject of these surface flints I may allude to two remarkable objects in my collection the origin of which had considerable light thrown upon them by my visit to Thebes. I had for some years possessed two flint bracelets, which had attracted the attention of anthropologists on account of their excellent workmanship. These are represented, full size, in figs. 7 and 8, Plate XXXI. They were found in one of the tombs near Koorneh, but no further particulars respecting them had reached me. These objects being unique, so far as I know, and being undoubtedly genuine, it had always struck me as singular that so unsuitable a material as flint should have been employed for the purpose. The bracelets are entirely formed by chipping, no grinding or polishing being seen on any part of their surface. Amongst the flints which strewed the surface on Gebel Assart were a large number of round nodules, of which some specimens are represented, half size, in figs. 9, 10, 11, 12, and 13, Plate XXXII. They were evidently imported to this spot for flaking, and most of them were more or less chipped by the flint workers. They all consist of a central body surrounded by a ring of the same material. Mr. Newbold describes these bodies thus: "I may briefly notice," he says, "some singular silicious bodies that occasionally occur embedded in the marine limestone, and are particularly numerous in the limestone rocks of Thebes. They cover the *débris* at the foot of the cliffs in such profusion that they are termed by the Arabs 'nuktah,' or drops which they suppose to have been rained from heaven. They are also seen

* Evans's "Ancient Stone Implements," p. 287.

there *in situ* deposited conformably in a horizontal layer of whitish marl in the earthy white limestone which abounds in thin seams of crystallised gypsum, muriate of soda, and calc spar. These bodies usually assume the shape of spheroids encircled by a belt resembling the delineation of a planet with its belt (fig. 9, Plate XXXII). Two are sometimes connected together, whilst others assume various modifications of form. They have a thin whitish coating, and in the interior present a greyish or brownish chert (see fig. 12, Plate XXXII). Ehrenberg ("Edin. Phil. Journal," April, 1841), who lately examined these silicious spheroids, terms them ocellated stones, or *morpholites;* he found no traces of organic structure, and is of opinion that they are the result of crystalloidal or morpholitic force. Their structure does not present radiation from the centre nor any appreciable crystalline development in their parallel planes of formation founded on uniform laws, which frequently, perhaps always, parted from many axes of formation. In the curious structure of these bodies Ehrenberg discovered foreign bodies, small stones, fragments of granite, &c."

Thus far is the description given of them by Mr. Newbold and Ehrenberg; but what concerns more immediately the subject of my present communication is that when fractured along their broadest axes (fig. 12, Plate XXXII) the material is seen to be distributed in concentric rings encircling a centre differing from the remainder in colour only. The ring or belt surrounding the main body is often divided from it only by a thin partition; and sometimes the ring only is found, as seen in the semicircular portion of one represented in fig. 13, Plate XXXII. The material is identical with that of the bracelets in my possession, and it seems evident that the idea of forming a bracelet of them has been suggested by the form of the stones. By chipping out the central body or by using a flint from which the central body had disappeared through natural causes, the remaining ring might easily be chipped into the form of the bracelets represented in figs. 7 and 8, Plate XXXI, thus accounting for the existence of an abnormal structure, which, as anthropologists are aware, so rarely present itself in relics of a barbarous age.

Fig. 14, Plate XXXIII, is a remarkable specimen of a flint knife,* obtained from a tomb at Kom Ombos in the year 1874: it has probably been one of the flint knives used by the Egyptians in embalming the dead; it is 12·05 inch in length and 0·36 inch greatest thickness. As a specimen of flint chipping it is unequalled, being worked in long facets across the face of the blade.

* This knife and the flint bracelets were obtained by Mr. McCallum, the artist, from whose possession they passed into my collection.

So long, however, as the finds of palæolithic implements were confined to the surface, all conjectures respecting date, as Mariette Bey truly observes, are hypothetical; probabilities may be put forward again and again and may be refuted by probabilities equally cogent on the other side.

It is to stratified deposits of gravel or alluvium that we must look for evidence such as that which in Europe has satisfied anthropologists of the antiquity of the implements found in them. M. Arcelin is said by Sir John Lubbock to have stated that the deposit of worked flints on the sides of the valley at Abu-Mangar extend beneath the modern deposits of the Nile; but Sir John himself was unable to verify this observation. Mr. Jukes Browne found many flints on the surface of the plateau near Helwan, but not beneath the surface. Since this, however, Dr. Mook appears to have found them in alluvial deposits near this place, in association with the bones of zebra, camel, hyena, ostrich and other animals, which have since retreated further south.*

Upon the gravels of the Nile valley little appears to have been written. Mr. Leonard Horner, in his two papers in the "Philosophical Transactions," scarcely touches upon them, nor does Mr. Newbold treat upon them in any detail, and so far as I am aware any light that can be obtained as to their mode of deposition must be derived chiefly by analogy from other sources.

I have already said that the low plateau to the north-east of Koorneh, called Gebel Assart (see E, Plate XXVII), is covered with the *débris* of chert workshops. So thickly are these flints strewed upon the surface that the whole of the ground, when viewed from the little hill called Elwat-el-Deban, or the "Hill of Flies" (see D, Plate XXVII, and fig. 15, Plate XXXVI), appears to be distributed in brown patches where they occur, the chert fragments having assumed that colour by age. The soil beneath consists of indurated gravel composed of chert and limestone cemented together by carbonate of lime, and the whole deposit appears to have been washed down from the Bab-el-Molook, a tributary valley in which the tombs of the kings are situated, and to have spread out on the plain in a fan shape between the gorge of the valley and the Nile. Through this delta or fan of gravel a waddy (A.B., Plate XXVII, and fig. 15, Plate XXXIV) about 80 paces (61·0 metres) mean width, has cut its way to a lower level and now extends from the gorge of the valley to the margin of the highest Nile floods, passing through the fan for a

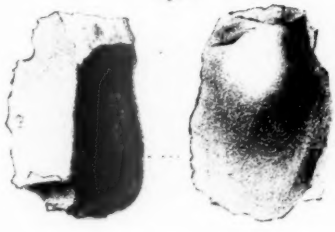
* Professor H. Haynes also found implements of palæolithic form near Thebes, but on the surface only

distance of nearly 2,000 paces (1,540·0 metres) and opening into the plain about 270 paces (207·0 metres) to the east of the Temple of Koorneh. The bottom of the waddy throughout this space slopes at a very slight angle of not more than half a degree, and the surface of the delta of gravel on each side has scarcely a greater angle, but seams of mud in the section on the sides of the waddy are seen to slope down at an angle varying from 2 to 2½ degrees towards the Nile, showing in all probability that the delta of gravel was formed gradually as it extended from the centre to the circumference. This appears to me the most rational way of accounting for the deposits in question, though it must be admitted that there are places in the valley where the gravel, when viewed from the Nile, appears to abut upon the precipitous sides of the range of hills in a way that would require a different interpretation, but the subject requires more time and detailed study than I was able to afford to it.

When viewed from the "Hill of Flies," the entire length of the waddy (A.B., Plate XXVII), as it passes through the gravel hills, is exposed to view, but it is noticed that the brown patches of chert which I have alluded to as occurring on the surface of the delta are not continued in the bottom of the waddy, which is seen as a white streak throughout its length. This proves that the flints on the surface of the delta were imported for fabrication at a prior date to the completion of the cutting of the waddy, for had they been imported subsequently, there is no ostensible reason why the flint-workers should not have occupied the bottom of the waddy also; nor, on the other hand, does it appear likely that the use of flint had entirely ceased when the waddy had reached its present depth, because flint flakes, though not so abundant as on the delta above, are found on the surface of the waddy. Fig. 5, Plate XXIX, which approaches most closely to a celt of the neolithic type, although its form does not necessarily prove it to be neolithic, was picked up by me in the waddy, and in one place I found a deposit of chert flakes which appeared to have been struck off on the spot.

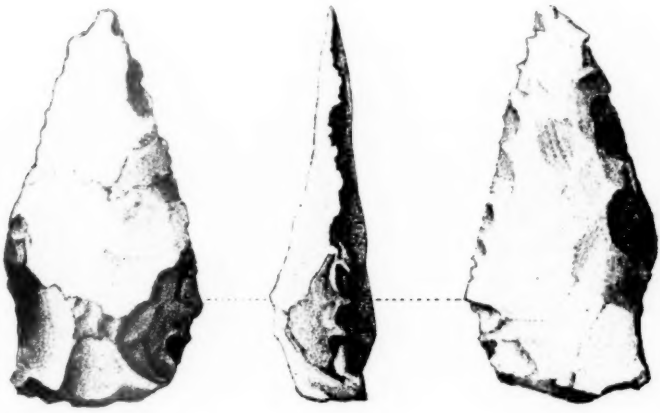
It is certain, however, that in Egyptian times the waddy had reached its present dimensions, and that it has never changed materially since, for the sides rising at a more or less abrupt angle in places to a height of 9 feet to 19 feet (3 to 6 metres) have been cut into tombs, which consist of flat-topped chambers and galleries supported by square pillars of gravel, and the floors of which are in some instances nearly on the level of the bottom of the waddy. (See the section across the waddy, figs. 18 to 20, Plate XXXIV.)

The gravel had become so indurated at the time these tombs were cut as to form a conglomerate. The tops of the chambers



CHERT IMPLEMENTS FOUND ON THE SURFACE
NEAR THE TOMB OF MERICARA, ASYOOT.
HALF SIZE.

Fig. 4.



IMPLEMENT OF PALÆOLITHIC FORM
FOUND ON THE SURFACE NEAR KOORNEH. HALF SIZE.

Fig. 5.

IMPLEMENT OF NEOLITHIC FORM
FOUND IN THE WADDI NEAR KOORNEH. HALF SIZE.

Bankart, lith.

Fig. 27

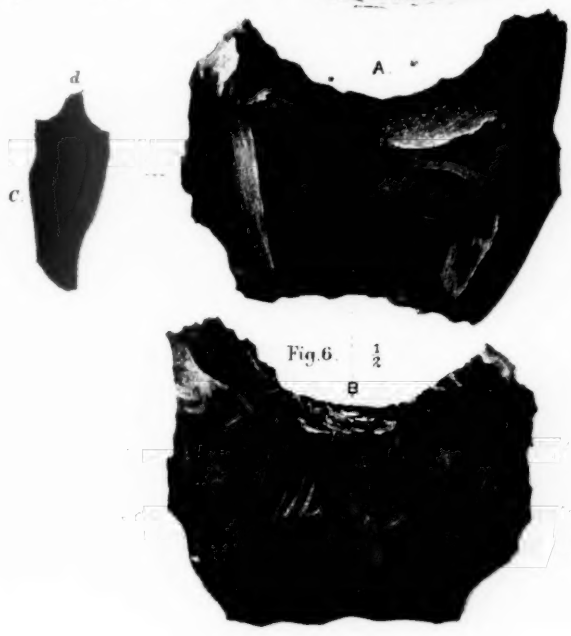
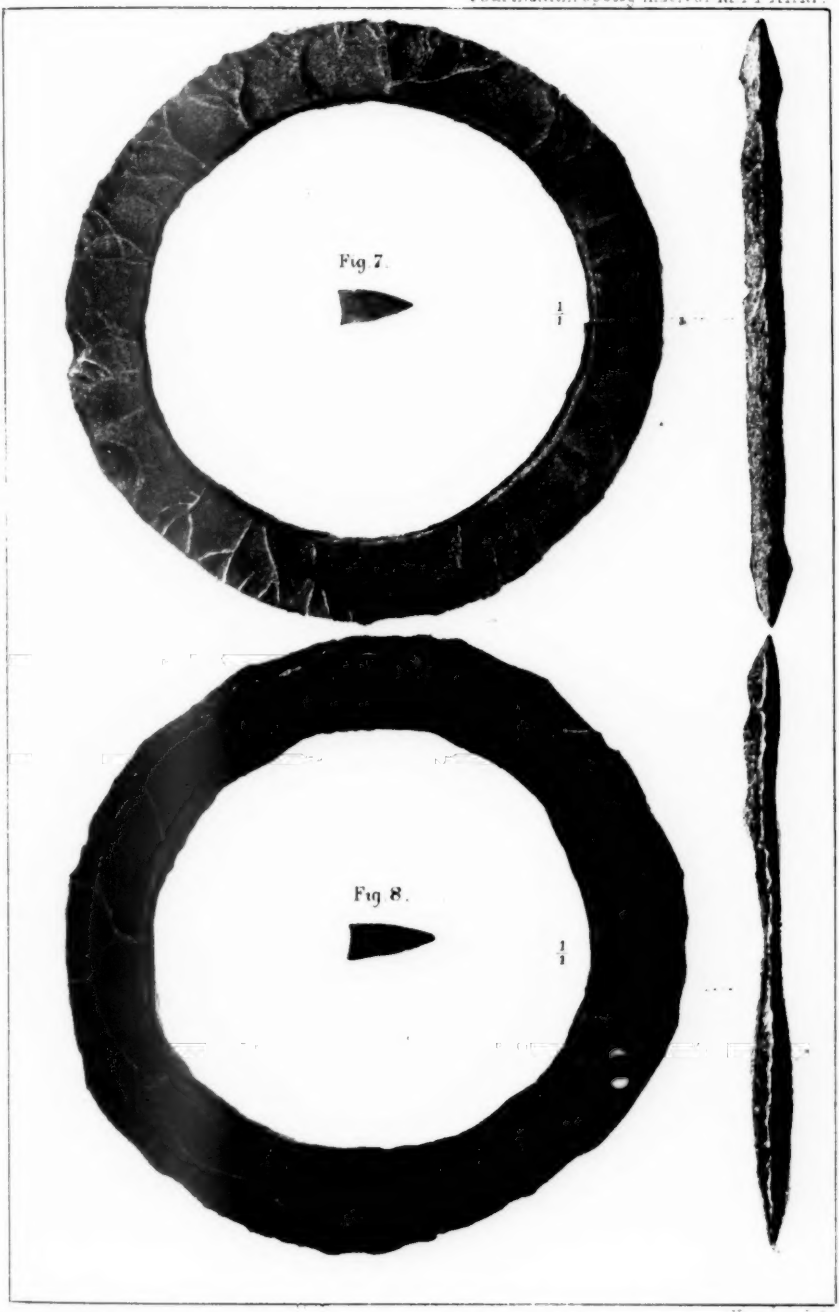


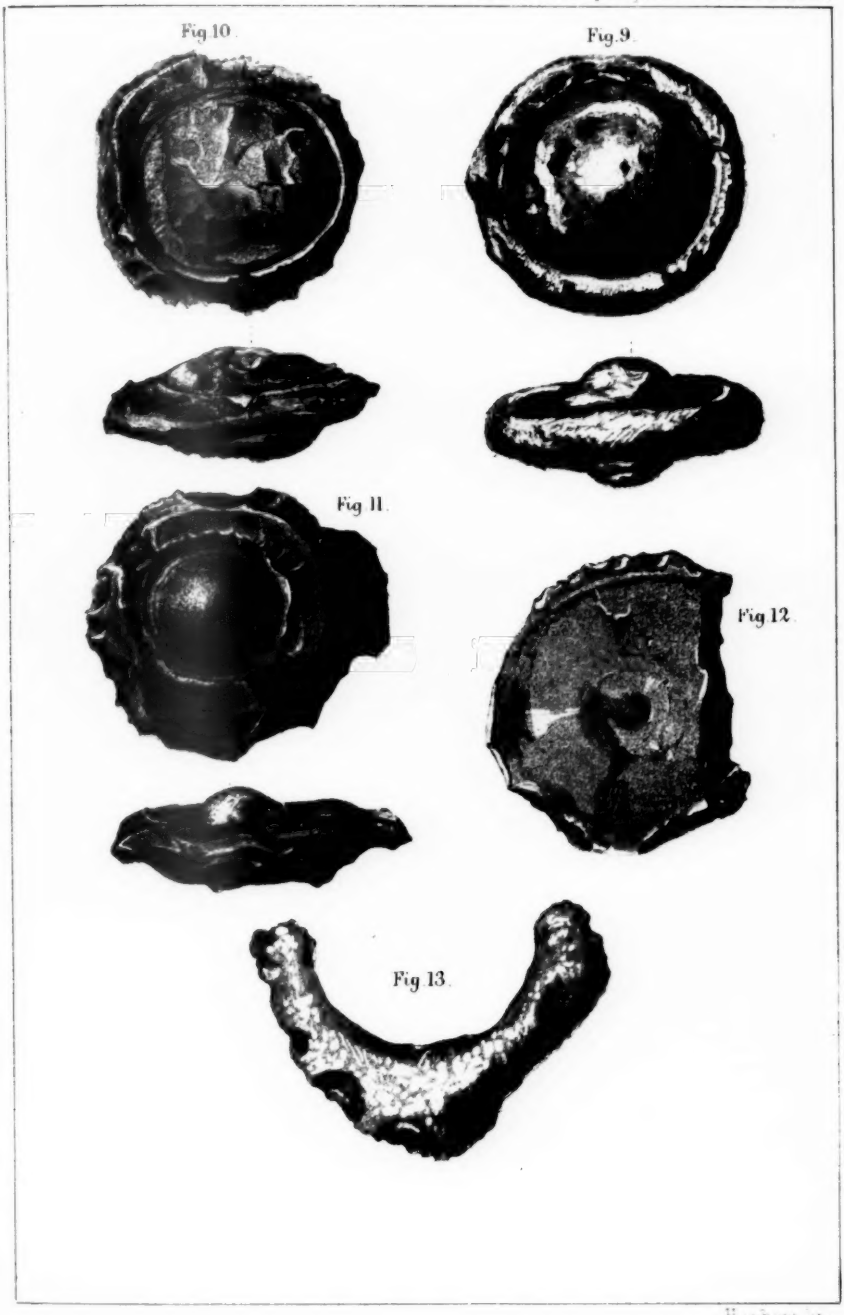
Fig. 6. $\frac{1}{2}$

Hatchard Imp.

HOLLOW SCRAPER FOUND ON THE SURFACE AT GEBEL LAHA-MARE.
VIEW OF FAN IN LADAKH, INDIA



CHIPPED FLINT BRACELETS FOUND IN A TOMB
NEAR KOORNEH.
FULL SIZE.



Hanhart lith.

MORPHOLITES FOUND ON THE SURFACE
NEAR GEBEL ASSART, THEBES.
HALF SIZE.

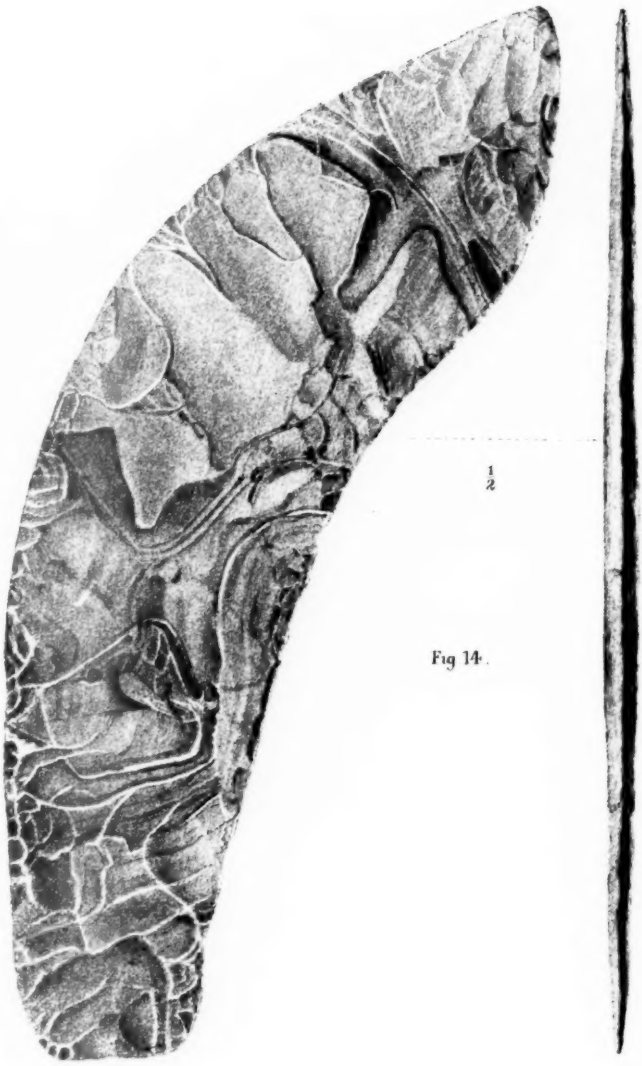


Fig 14.

Hanhart, Imp.

CHERT SACRIFICIAL KNIFE FOUND AT KOM OMBOS.
HALF SIZE.

are perfectly flat, and 14 feet (4·250 metres) square in some cases, and the pillars averaging 23 inches (0·6 metres) square have retained the sharpness of their edges to the present time, and in one of them a seam of mud is seen in the middle of the upright pillars, all having nearly the consistency of stone.

It was in this gravel that I commenced my search for flint flakes, on the 4th March, 1881, and as the discovery I am about to record is likely to be more widely known hereafter than the author of it, it seems proper that I should mention here that I had qualified myself for the search by previous investigations of the like kind. For some years I had made a particular study of river gravels. I had discovered palæolithic implements *in situ* in the drift gravel at Acton, the first which up to that time had been found in that part of the Thames valley, a record of which is in the "Quarterly Journal" of the Geological Society. I had also examined every section in which palæolithic implements had been found by others in England or on the Continent. Following the example of Dr. John Evans, F.R.S., to whom most prehistoric archæologists are indebted for their first lessons in the fabrication of flint implements, I had myself constructed flint implements many years ago, and had by that means acquired a thorough knowledge of the fracture of flint, a qualification of the first necessity to any one who proposes to examine a section of gravel for this purpose, because only a small portion of the sides of any flint is exposed to view in a section, and it requires the eye of an expert to distinguish from amongst the innumerable fragments of chert, of which a cherty gravel is composed, those which it is worth while excavating for the purpose of examination. Of the fragments thus unearthed for examination, only a small proportion even in the most productive site will be found to bear the recognised marks of human agency which constitute a flint flake, and which, as all prehistoric archæologists are aware, consists of a combination on the same flint of a bulb of percussion on the smooth face, one or more facets at the back caused by blows delivered in the same direction as that by which the bulb on the other face was produced, and on the top of the flake, contiguous to the bulb, the small residuum of the surface of the core from which the flake was made.

I had not long to look before several flakes such as I have described turned up in positions which proved unmistakably that they were constituent parts of the gravel. The section fig. 17, Plate XXXIV, here shows 3 feet 9 inches (1·15 metres) of gravel on the top composed of subangular and rounded chert and limestones, then 13 inches (0·33 metres) of hardened mud somewhat similar in colour to the Nile mud, but mixed with

occasional flints, and sloping at an angle of 2½ degrees towards the Nile, then gravel again of the same materials as before.

The flakes were found chiefly beneath the mud seam at distances of 6½ to 10 feet (2 to 3 metres) from the surface; they are of the ordinary kind, having bulbs of percussion and facets, drawings of which are given in figs. 22 to 26, Plates XXXV and XXXVI. Of the fact of their forming constituent portions of the gravel, none who saw them *in situ* could for a moment doubt; but in order to afford proof that the recognised marks of human agency were not derived from the blows of the Egyptian workmen in excavating the tombs, special care was taken to observe and record the position of the bulbs and facets as they lay in the gravel. Fig. 24, Plate XXXV, affords an example of this; this flake, which it will be seen has a bulb, two facets, and a piece of the surface of the core, was found in the evenly cut side of one of the tombs. The point of it (*a*, *a*, *a*, fig. 24, Plate XXXV) had been cut off flush with the side in forming the tomb, the thin section of it only appearing on the surface of the tomb as shown in the front and side view represented in fig. 21, Plate XXXIV.

In order to examine the position of the facets and bulb, the gravel was first chiselled away from beneath it, but it was so hard that it took two of us nearly ten minutes to excavate it. Having cleared the part below the flake it was then let down, when it was seen that the bulb on the smooth face and the two facets on the back had been formed by blows of a hammer which were delivered in a direction which was *inwards* as the flake lay, and must therefore have been formed before the flake was buried in the gravel. The same observations were made in the case of all the other flakes, seven of which were thus removed from the gravel on the first day. This was the 4th March.

Realising the importance of obtaining a competent witness to the position of these flints, I at once communicated the result to Mr. Campbell, F.G.S., who was stopping at Luxor. He accompanied me to the spot on the 6th, and satisfied himself upon the point by chiselling several flakes out of the gravel with his own hands; verifying the observation with respect to the position of the bulbs and facets as the flakes were removed from the matrix.

We then examined the sides of the waddy northwards to see how far the flakes could be found in the gravel in the direction of the opening of the gorge. Another, in this case an implement of palæolithic type (fig. 25, Plate XXXVI), was found 5 feet (1·6 metres) from the top as shown in the section (fig. 16, Plate XXXIV). The sides of the waddy were here nearly 14 feet (4·250) high, and the gravel was composed of the same materials as before.

This was about 400 paces (300·0 metres) from the margin of the delta, and about 500 paces (400·0 metres) from the mark of the highest Nile floods, so that the whole of the gravel between this and the Nile must have been formed during the period that flint was used in this place. Higher than this we could find no trace of implements, nor could any shells or bones be found; but I left Mr. Campbell at Luxor, and have reason to hope that his geological experience may be the means of throwing further light on this important part of the question; but the gravel, it will be observed, has nearly the consistency of stone, and to quarry it for the sole chance of finding bones would be a work of great time and labour. I was reluctantly compelled to leave this part of the subject to future explorers.

It now remains only to consider the value as evidence of the facts which have been adduced. Considering the action of carbonate of lime in cementing the particles of gravel together the circumstances of its being formed into a conglomerate need not in itself be taken to imply very great antiquity. Mr. Newbold observed in the calcareous cliffs skirting the Mediterranean between Alexandria and Aboukir, a bed, 1 foot thick, of bleached human bones derived from ancient Roman graves, which had been washed into their present position by drainage water running from the higher ground to the sea, and which were covered with a layer of gravel and sand varying from a few inches to 3 or 4 feet, which had been agglutinated together by carbonate of lime and ferruginous matter deposited by drainage water.

In other places in the Nile valley he also speaks of recent rocks formed in this way. But here at Thebes we have to deal with a mass of gravel extending 400 paces (300·0 metres) along the radius of the fan, and from 10 to 20 feet (3 to 6 metres) in thickness, all which has been deposited since flints were in use.

I have failed to ascertain the exact period of the tombs cut in this gravel in the sides of which the flint flakes were discovered. But within certain limits their date can be fixed. The fragments of pottery found in them have been submitted to Dr. Birch, who pronounces them to be not later than the XVIIIth Dynasty, and perhaps earlier. Five skulls found in them, the dimensions of which are given in the accompanying tables (Appendix A), are of the usual Egyptian type; the skulls are dolicho-cephalic; mean cephalic, index 750; nasal index, 513; orbital index, 872; alveolar index, 1,012; measured according to Professor Flower's method. The fragments of mummy cloth in which they were contained were found in the tombs; they show no trace of bitumen, the skulls being as

white as any prehistoric skull found in this country. That might either imply an early date, or that they belonged to the poorer class of Egyptians who did not use bitumen—probably the latter, as the graves of the richer class were usually excavated in the harder rocks.

The nearest tombs to the north-west, those of Drah-Aboo'l-Negga, are of the XIth Dynasty. The particular tombs which I am describing are not marked in the "Description de l'Egypte," published in 1809, but those situated nearer the second section are there marked Hypogée. Those now in question are given in the plates of Lepsius' great work, and are also marked in Sir Gardner Wilkinson's topography. Even supposing the tombs to be of the latest period assigned to them, viz., the XVIIIth Dynasty, this may carry us back as far as 3500 years from the present time, for the date of the excavation of the tombs.

But it is to considerations relating to the formation of the delta that we must look chiefly for determining approximately the age of the gravel. I am not aware that the Nile gravel has been carefully studied by any geologist. Probably Mr. Campbell can give the Institute more information upon this subject than any one else; but Mr. Drew, in the XXIXth vol. of the "Quarterly Journal" of the Geological Society, has described similar deposits in the valley of the Upper Indus. It appears to be generally admitted by geologists that the Nile has not cut its own channel in later times, but has followed a furrow made previously to the last rise of this district above the ocean. If so, we may discard from consideration all idea of gravel deposits left by the Nile on the sides of its valley as it worked its way down. We must suppose the gravel under consideration to have been brought down from the side valley before alluded to and spread out in a fan or delta similar to that described in Mr. Drew's paper at Pamzalan, Changchenmo, Ladakh, a drawing of which, extracted from his paper, is given at fig. 27, Plate XXX. It is there shown how the main river rising, or changing its course, has eaten into the edge of the fan and formed a cliff of greater or less height in it, and has then retreated. The water from the side valley still continuing to flow down towards the main river has then cut a lower channel back from the edge of the cliff to the gorge in the hills from which it descends. The main river still retreating has left an alluvial plain between it and the cliff which it had cut previously. The water from the side valley continuing to bring down sediment from the hills has then formed a second fan at a lower level than the first. Now we know that the bed of the Nile has both risen and changed its course since Roman times. According to Sir

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these valleys, he says, are for the most part covered with drifted gravel composed not only of the detritus of rocks in the vicinity but of rolled pebbles of other formation transported from a great distance, for whose presence the action of existing streams is not adequate to account, as these pebbles often rest on ledges and hills much elevated above the general drainage level.

To what cause are we to attribute such an entire change in the process of denudation of the hills bordering the Nile? The main cause of disintegration, as Mr. Drew observes, when speaking of like changes in the Upper Indus, is frost. Have we then in the facts now recorded evidence of the presence of man in the Nile valley, living under conditions of climate that were totally different from what exists at the present time?

The accompanying tables (marked Appendix B and C) contain measurements of other skulls found in tombs near Thebes which I obtained from natives. The measurements are carefully taken according to both Professor Flower's and Mr. Busk's systems, and may be useful for comparative craniometry. The skulls appear to be homogeneous in character, and are probably of the true Egyptian race. When I obtained them they were covered with mummy cloths and bitumen: the nasal spine appeared in each case to have been removed in the process of embalming. These skulls have no special bearing on the objects of this paper.

APPENDIX D.

(Extracts from Letters written by J. F. Campbell, Esq., F.G.S.)

"Niddry Lodge, Kensington,
"My Dear General, "July 11, 1881.

"According to your wish, I send you extracts from letters which I wrote from Luxor, and which bear upon the discovery of worked flints in old gravel, on which stand some of the oldest Egyptian monuments.

'Luxor, January 15, 1881.

'I. Geologically, the Nile hollow is denuded out of a plateau, which is limestone, from here to Cairo. The beds are nearly horizontal all the way, and I have been at the base of the cliffs at many places. The cliffs are crumbling from the work of sunshine and air; expansion by day, contraction by night, caused by a daily range of 40° to 114° = 74°, and chemical decomposition of limestone in air. It rains here about once or twice in ten years, when a thunderstorm whirls water enough this way to make a heavy thunder plump. Then all the rain gathers into V-shaped 'waddies,' and a torrent sweeps the talus formed at the base of the cliffs down into the shape of a delta, into the Nile hollow. When the flood waters reach so far, they work on their side "deltas," wash them and spread them on the mud of Egypt, and wash mud and sand

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MEASUREMENTS OF CRANIA FROM WHICH TOMBS THE CHERT IMPLEMENTS WERE OBTAINED, 1881.

Number.	Greatest. Horizontal Circumference.	Greatest. Length.	Greatest. Height from Auricular point.	Other Measurements. Least Frontal width.	Greatest width at Zygomatic Arches.	Width of Cheek Bones beneath outer margin of Orbits.	Depth of Chin from root of Teeth.	Remarks.
1	507	183	139	99	†	†	—	
2	499	179	137	104	†	†	—	
3	493	177	135	114	†		—	
4	509	182	134	102	†	†	—	
5	480	171	134	103	119	94	—	
Totals	2488	892	669	522	119	94	—	
Average	498	178	138	102	119	94	—	

F.R.S., DECEMBER, 1881.

1	529	192	1·02	95	141	120	34	Nasal bones and chin prominent. Teeth slightly ground.
2	511	180	1·98	97	137	114	35	Nasal bones rather prominent, chin deep and prominent.
3	502	181	1·98	95	123	105	23	An aged person.
4	525	188	1·99	94	124	105	30	Nasal bones and chin slightly prominent.
5	525	190	1·98	92	117	100	30	Nasal bones very, and chin slightly, prominent. The teeth ground.
6	†	181	1·98	93	136	†	30	Skull fractured. An aged person. Cheek bones and chin very prominent.
7	522	189	1·99	99	129	103	33	Nasal bones and chin very prominent.
8	510	185	1·07	91	127	109	31	Nasal bones prominent, chin slightly so.
9	517	188	1·99	94	127	108	31	Nasal bones prominent, chin rather prominent, teeth ground.
10	498	182	1·99	93	130	109	29	Nasal bones prominent, chin rather prominent.
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12	504	183	1·95	94	124	102	†	
13	523	187	1·00	93	131	100	†	Nasal bones very prominent, teeth ground.
Totals	6183	2412	18·92	1225	1680	1282	331	
Average	513	186	1·99	94	129	107	30	

RIVERS, F.R.S., DECEMBER, 1881.

	486	173	139	90	123	101	—	Skull of a juvenile cutting right wisdom tooth, frontal and parietal sutures not closed. Rather prognatheus.
	520	181	135	97	128	107	—	This skull is remarkably brachycephalic, the cephalic index being 840. Out of 32 ancient Egyptian skulls described by Professor Flower in his Osteological Catalogue, Part I, "Man," only two reached 800, the highest being 807. Mr. Flower also records only one case in which the orbital index reaches 1,000, which is the index of this specimen.

† given in cubic centimetres.

white as any prehistoric skull found in this country. That might either imply an early date, or that they belonged to the poorer class of Egyptians who did not use bitumen—probably the latter, as the graves of the richer class were usually excavated in the harder rocks.

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APPENDIX A.

MEASUREMENTS OF CRANIA FROM THE TOMBS OF EL WADDI CUT IN THE GRAVEL FOUND, TAKEN BY MAJOR-GENERAL PITT

Number.	According to Professor Flower's Method.																Mr. Busk's Method,		
	Greatest.			Cephalic Index.	Height.		Basi-Nasal length, i.e., from Basion to Nasion.	Basi-Alveolar length, i.e., from Basion to Alveolar point.	Alveolar Index.	Nasal.			Orbital.			Cubical Capacity.	Vertical.		From
	Horizontal Circumference.	Length.	Breadth.		From Basion to Bregma.	Index.				Height.	Width.	Index.	Height.	Width.	Index.		Radius vertically to Bregma.	Arc.*	Radius to Ophryon.
1	507	183	136	743	132	721	100	100	1000	51	26	510	33	37	892	1430	119	320	100
2	499	179	135	755	125	698	91	93	1022	†	†	†	32	36	889	1290	119	317	98
3	493	177	131	740	129	729	97	94	969	52	24	460	34	40	850	1300	114	305	96
4	509	182	134	736	126	692	98	100	1020	49	27	551	32	38	842	1340	117	309	103
5	480	171	133	778	122	713	93	87	935	49	26	531	31	35	886	1120	107	288	95
Totals	2488	892	669	3752	634	3553	479	474	4946	201	103	2052	162	186	4359	6400	576	1539	492
Average	498	178	134	750	127	711	96	95	989	50	26	513	32	37	872	1280	115	308	98

APPENDIX B.

MEASUREMENTS OF EGYPTIAN MUMMY SKULLS, BY MAJOR-GE

1	529	192	139	724	132	688	96	94	979	53	26	491	37	40	925	1460	115	315	101
2	511	180	143	794	136	756	107	97	907	57	26	456	34	38	895	1480	117	320	101
3	502	181	139	768	128	707	101	100	990	47	23	489	33	42	786	1220	116	314	102
4	525	188	140	745	133	707	99	95	960	49	24	490	34	37	919	1390	118	312	102
5	525	190	138	726	125	658	102	102	1000	45	24	533	29	39	744	1430	118	315	103
6	†	181	144	796	134	740	105	96	914	54	24	444	33	38	868	†	117	†	106
7	522	189	141	746	142	751	108	95	880	52	27	519	33	42	786	1480	126	336	111
8	510	185	136	735	131	708	103	104	1010	49	25	510	31	40	775	1390	118	312	108
9	517	188	131	697	135	718	104	100	962	50	26	520	31	39	795	1320	120	310	103
10	498	182	128	703	132	725	103	100	971	48	25	521	32	41	780	1390	120	310	104
11	517	186	142	763	140	753	104	97	933	54	24	444	34	43	791	†	121	324	105
12	504	183	140	765	136	743	96	90	938	50	25	500	35	41	854	1440	115	315	96
13	523	187	143	765	130	695	103	101	981	53	25	472	35	37	946	1560	122	325	108
Totals	6183	2412	1804	9727	1734	9349	1331	1271	12425	661	324	6389	431	517	10864	15560	1543	3808	1350
Average	513	186	139	748	133	719	102	98	956	51	25	491	33	40	836	1415	119	317	104

APPENDIX C.

MEASUREMENTS OF ABNORMAL AND JUVENILE MUMMY SKULLS, BY M

	486	173	132	763	131	757	98	99	1010	45	23	511	29	39	744	1270	115	310	97
	520	181	152	840	130	718	103	93	903	53	25	472	39	39	1000	1400	117	325	102

NOTE.—The figures show the measurements in millimetres, except in the column heade

* The arc is measured from centre to centre of the Mea

† The cranium being fractured, this measurement coul

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IX A.

RAVEL ON THE SIDES OF WHICH TOMBS THE CHERT IMPLEMENTS WERE AL PITT RIVERS, F.R.S., JUNE, 1881.

's Method, taken from the Meatus Auditorius.							Other Measurements.				Remarks.
	Frontal.		Parietal.		Radius to.						
rc.*	Radius to Ophryon.	Arc.*	Radius to most prominent part of Parietal.	Arc.*	Nasion.	Alveolar point.	Least Frontal width.	Greatest width at Zygomatic Arches.	Width of Cheek Bones beneath outer margin of Orbits.	Depth of Chin from root of Teeth.	
320	100	272	125	340	90	99	99	†	†	—	
317	98	267	122	335	92	97	104	†	†	—	
305	96	264	118	321	92	95	114	†	†	—	
309	103	275	120	325	92	104	102	†	†	—	
288	95	262	112	309	90	94	103	119	94	—	
539	492	1340	597	1630	456	489	522	119	94	—	
308	98	268	119	326	91	98	102	119	94	—	

IX B.

JOR-GENERAL PITT RIVERS, F.R.S., DECEMBER, 1881.

315	101	277	122	326	94	102	95	141	120	34	Nasal bones and chin prominent. Teeth slightly ground.
320	101	283	122	340	97	98	97	137	114	35	Nasal bones rather prominent, chin deep and prominent.
314	102	273	117	325	94	98	95	123	105	23	An aged person.
312	102	275	120	325	93	99	94	124	105	30	Nasal bones and chin slightly prominent.
315	103	275	123	335	94	98	92	117	100	30	Nasal bones very, and chin slightly, prominent. The teeth ground.
†	106	†	122	†	95	98	93	136	†	30	Skull fractured. An aged person. Cheek bones and chin very prominent.
336	111	294	126	341	102	99	99	129	103	33	Nasal bones and chin very prominent.
312	108	285	123	328	98	107	91	127	109	31	Nasal bones prominent, chin slightly so.
310	103	280	121	326	93	99	94	127	108	31	Nasal bones prominent, chin rather prominent, teeth ground.
310	104	285	124	325	97	99	93	130	109	29	Nasal bones prominent, chin rather prominent.
324	105	285	123	340	96	100	95	134	107	25	Nasal bones very prominent, chin prominent.
315	96	270	118	325	88	95	94	124	102	†	
325	108	285	129	355	97	100	93	131	100	†	Nasal bones very prominent, teeth ground.
308	1350	3367	1590	3991	1238	1292	1225	1680	1282	331	
317	104	280	122	333	95	99	94	129	107	30	

IX C.

S, BY MAJOR-GENERAL PITT RIVERS, F.R.S., DECEMBER, 1881.

310	97	268	118	323	90	99	90	123	101	—	Skull of a juvenile cutting right wisdom tooth, frontal and parietal sutures not closed. Rather prognatheus.
325	102	280	120	350	95	95	97	128	107	—	This skull is remarkably brachycephalic, the cephalic index being 840. Out of 32 ancient Egyptian skulls described by Professor Flower in his Osteological Catalogue, Part I, "Man," only two reached 800, the highest being 807. Mr. Flower also records only one case in which the orbital index reaches 1,000, which is the index of this specimen.

umn headed "Cubical Capacity," which is given in cubic centimetres.

of the Meatus Auditorius.
ement could not be taken.

down to the big Nile Delta Δ, and on into the Mediterranean. The cliffs are full of shells and flints. Those being harder and heavier remain; sorted in side deltas, and piled in heaps between the waterways. The hot sun and the sand storms, and the daily north wind work on the flints and wear them; and sculpture stones according to their relative hardness. I have agates worn by the sand blasts according to their hardness; and black flints polished by drifting white flint sand, which looks like beds of drifted snow on the hill sides.*

"Yesterday I went flint hunting with Mr. Meyer, who seems to know what he is about. We crossed to the west bank, the "left," and rode north past Gourneh Temple, and past several dry water-courses, including the waddy, which is "The Gate of Kings," *Bab el Maluk*. In the pyramidal mountain which makes the south side of that waddy are the tombs of the kings, which give a date to the latest phase of this sort of geology.

'The Temples which are older than B.C. 200, are scattered because of the work of the great earthquake, which ruined them. Some stand upon mud, some on gravel.

'Tombs in the flint gravel, and tombs dug out of the limestone, are dated some six to eight thousand years ago, by experts in Egyptology. It follows that the natural sculpture of the side cliff, and the high mounds of flint left, are old beyond my powers of calculation; but manifestly older by far than the oldest history read in the tombs. We passed over the low flint gravel, and found an infinity of broken flints, which looked quite fresh, and may be modern human work. Then we spread like a company of sharp-shooters and made for a black hillock. There the ground is old, and a pile of flints left between a couple of waterways. There also the flints have been broken, and there the fragments look old. Some of these flints weather white, some black; and many of the flint flakes are weathered like the unbroken stones. I have no doubt that these are very old works of human art. We loaded our Arab guide with select samples, and we might have loaded carts and camels with flint flakes. But we did not find a single worked weapon: a barbed arrow or a spear-head, or anything neolithic. Flakes and flints from which flakes had been struck off, we did find in great abundance; and manifestly of very great age. I fancied that I could make out high water levels sweeping round the base of the mounds of flints, the remains of the crumbled cliffs, which now bound the Nile hollow, and may have bounded an arm of the sea before the history of Egypt, and Egypt itself began to be.† So far this relates to the ground over which we travelled together; and to worked flints strewn upon the surface, which abound in Egypt.'

* These sand-drifts are conspicuous all the way to Aden, on both sides of the Red Sea; and so far as I have seen on both sides of the Nile hollow.

† I have often looked for sea margins, but I have never been able to satisfy myself of their existence in Egypt and along the Red Sea.

Luxor, March 7, 1881.

. . . . 'II. Yesterday will probably make a paper for the learned Societies, on flints, &c., so I may as well write my private paper to you for comparison, without consultation with General Pitt Rivers.' (The letter repeats in substance, with diagrams, the view taken of the superficial geology of the Nile hollow).

'Any delta at the end of any Scotch glen serves to show the growth of deltas all over the world. I have been pouring water on Nile mud, and so digging water furrows, and watching deltas grow out of the furrows here. . . . . A furrow having been made by a rain storm, the waters collected in the furrow shoot out the stuff at a lower level. The oldest stuff is the lowest, the newest stuff is shot over the oldest, and when a mound has grown big enough, stuff is shot right and left. The present condition of the fan-shaped combined deltas of the side furrows carved in the Nile cliffs, is that water streams shot right and left Δ, cutting furrows in the old gravel. The limestone at the hill tops 1,400 and 1,500 feet above the Nile, and down to the bottom of the furrows crumbles to the touch. I have often picked out flint fossils with my fingers . . . Where a stream has cut a section through the gravel, the structure of it tells the story of the birth and growth of a delta . . . Time and lime have cemented this Egyptian delta formation into a sort of breccia which needs hard hammering to break it up. It extends from Assouan to Cairo. The temple at Gourneh stands upon it. Till yesterday I had not realised that the "Gate of Kings," has rows of tombs of each side for miles. I crossed this "street," at the level of the present bed of the streams which flowed last time many years ago. Right and left for a very long way tombs are driven horizontally into gravel cliffs cemented by lime water into the seeming of an old conglomerate. These tombs are cut like a coal gallery in a mine, and stand open like a row of doors in a street, divided by square pillars. Above this street of tombs are deep pits, sunk into hard gravel, old tombs now opened by Arabs and others. . . These upper streets, peopled by mummies, extend up to the first limestone cliff. The cliff face has been smoothed and plastered and painted, and long squared passages are driven horizontally into the limestone. These doors stand open now, and rows of them extend up to near the top of the ridge, 1,400 feet. "The mountain in the west where Thoth abides," now called Djebel Asas, was the mausoleum in which Egyptians shelved the dead people of Thebes. There is no sort of question about the antiquity of temples and tombs in which inscriptions tell the story: 1500 B.C. the shape of the street of tombs was much the same as it is now. The delta of this waddy had been built and cemented, and a late direction had been given by it to running water, which caused the water to undercut the hard gravel and make cliffs, before the tomb, however, drove their galleries into the gravel. "If you, with your knowledge and authority, can find anything of human work in that hard gravel," said I to P. Rivers, "you will find something beyond calculation older than these Egyptian

temples and tombs." He went back, and he found worked flints in the hard gravel.

'Yesterday we went together. We sought in the walls of hewn tombs for ends of flints. When our authority pronounced favourably of the appearance of an end, James (my servant) and I hammered and worked about it, till it was got out. Many were rejected, many were selected, one had been cut off in hewing the tomb. It came out a finished "flake," with the bulb of percussion far inside in the hard gravel. I am witness to the find and its place. It is a work of human art according to a good judge.

'It belongs to the geological delta formation, and beyond question it is older beyond calculation than the tomb which was cut into the gravel, and cut through the end of this particular flint flake. We got more, and they are being marked for the famous collection at South Kensington.

* * * * *

'This is my story of yesterday's work, which may yet live in history as a date from which to calculate the antiquity of man.'

"These extracts may serve to confirm the statements made, and the explanations given in the paper which I heard read.

"My own work at Luxor was about sunshine, and experiments on light. I paid a visit to the dwellers in the Gourneh tombs, to Mohammed and his family, who guided Mr. Meyer first, and me afterwards, and I sketched some of them at work on the modern antiques, which they carve with great skill. They live in tombs. I sought in their hewn gravel walls for flint flakes, with my servant; but we were not fortunate enough to find any that time. It needs a skilled hunter, and patience, and time to unearth these buried works of human art. Now that this find has been made by a skilled authority, I have no doubt that works of men's hands will be found abundantly underlying the oldest history in the world; in the hard gravel which underlies the mud of the Nile hollow, from Cairo to Assouan.

"I am, yours very truly,

"J. F. Campbell, F.G.S.

"To General Pitt Rivers, F.R.S."

Description of Plates XXVII to XXXVI.

Plate XXVII.

Plan of Thebes, showing the position in which the flints were found. A.B.—El Waddi (*see* also the section fig. 15, Plate XXXIV). C—the tombs in the side of the waddy near which the flints were found. D—Elwat-el-Deban or the "Hill of Flies." E—Gebel Assart.

PLATE XXVIII.

Implements of chert found on the surface near the tomb of Meri-Ka-Ra, Asyoot—

Fig. 1. A kind of celt, at the lower end, and narrowed to a tang at the top for insertion into a handle.

Fig. 2. A kind of maul, similarly constructed at the top.

Fig. 3. A flake. All half size.

PLATE XXIX.

Fig. 4. Chert implements of palæolithic form. Found near the highest flood mark below Gebel Assart (three views).

Fig. 5. Chert implement resembling neolithic form. Chipped; found in the bottom of El Waddi (three views). All half size.

PLATE XXX.

Fig. 6. A hollow scraper for planing round surfaces (three views, half size). A—the side towards which the implement was drawn in planing. B—the other side. C—the section. Found on the surface at Gebel Lahamare.

Fig. 27. View showing the formation of a fan in Ladakh. Extracted from Mr. Drew's paper in the "Quarterly Journal" of the Geological Society of London, vol. xxix.

PLATE XXXI.

Figs. 7 and 8. Drawing of two chert bracelets; found in tombs near Koorneh. Full size.

PLATE XXXII.

Figs. 9 to 13. Specimens of chert morpholites, from which the bracelets are believed to have been formed.

Fig. 9. A perfect specimen (two views).

Figs. 10 and 11. Two, chipped by the flint workers.

Fig. 12. One split in half, showing the concentric rings in the interior.

Fig. 13. Half a ring from which the central spheroid has been detached. All half size.

PLATE XXXIII.

Fig. 14. A remarkable specimen of a chert knife, found near Kom-Ombos. Supposed to be a sacrificial knife. (Two views.) Half size.

Fig. 15

SECTION ALONG THE LENGTH OF EL WADDI, SHOWING THE POSITION OF THE TOMBS AND WORKED FLINTS

Scale of paces for Fig 15

100 50 0 100 200 300 400 500

Fig. 16.

2ND SECTION.

A. Waterworn gravel of flints, mud and limestones; stones 4 to 6 inches across, subangular and rounded.

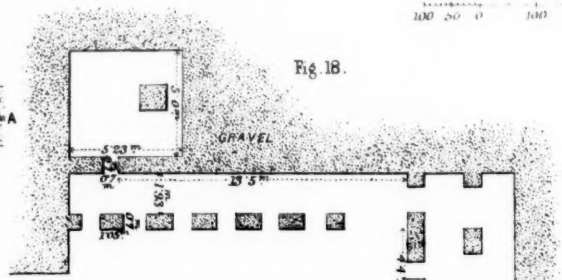
B. Ochreous sediment with occasional flints and limestones.

Fig. 17

1ST SECTION.

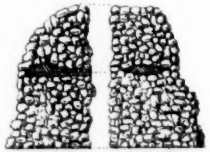
A. Seam of mud.
B. Tombs.
C. Gravel.
✦. Position of flints.

Fig. 18.



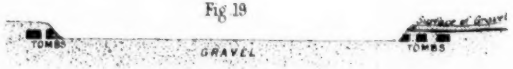
PLAN OF ONE OF THE TOMBS.

Fig. 21.



POSITION OF FLAKE IN SIDE OF TOMB.

Fig. 19



SECTION ACROSS WADDI AT 1ST SECTION.

10 5 0 10 20 30 40 50 60 paces

Scale of metres for Figs 16, 17, 18 & 20.

1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Fig. 20.

ELEVATION OF ONE OF THE TOMBS.

PLANS AND SECTIONS AT EL WADDI, SHOWING THE POSITION OF THE IMPLEMENTS.

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Fig. 22.

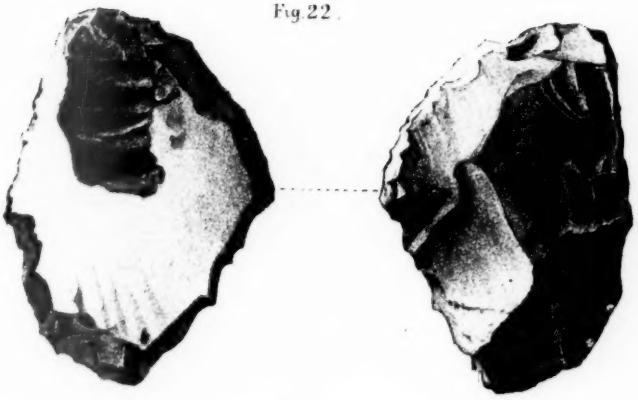

Fig. 23.

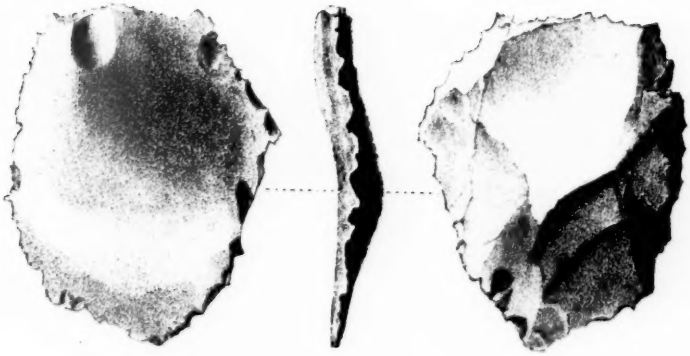

Fig. 24.

Hutchinson, imp.

CHERT FLAKES FOUND IN THE GRAVEL
AT THE SIDES OF EL WADDI.

Fig. 25.

FOUND 1·6M. BENEATH SURFACE IN GRAVEL
IN WHICH TOMBS WERE CUT. EL WADDI, KOORNEH.
HALF SIZE.

Fig. 26.

FOUND IN TALUS OF GRAVEL IN WHICH TOMBS WERE CUT
EAST OF TEMPLE OF KOORNEH.
HALF SIZE.

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PLATE XXXIV.

Fig. 15. Section along El Waddi; see A.B. on the map of Thebes (Plate XXVII), showing the positions of the tombs and the positions in which the chert implements were found.

Figs. 16 and 17. Two portions of the above section enlarged, showing the position of the seam of mud in the gravel, and of the flakes and tombs.

Figs. 18 and 20. Plan and elevation of one of the tombs in the side of El Waddi.

Fig. 19. Section across El Waddi showing the position of the tombs.

Fig. 21. Two views showing the position of a flake in the gravel on the side of one of the tombs, and the position of the bulb of percussion.

PLATES XXXV AND XXXVI.

Figs. 22 to 26. Flakes and one implement found in the gravel on the sides of the waddy in which the tombs were cut.

Figs. 22, 23, and 26. Two flakes and one core found in Section 1, fig. 17, Plate XXXIV.

Fig. 24. A flake, the position of which is represented in Fig. 21, Plate XXXIV.

Fig. 25. Implement found in Section 2, fig. 16, Plate XXXIV. All half size.

DISCUSSION.

Professor BOYD DAWKINS remarked that while General Pitt Rivers was working out the palæolithic deposits near Thebes, it was his good fortune to study at Boston a collection of palæolithic implements from the same place, made by Professor H. W. Haynes, in 1878, and shown at the Paris Exhibition in that year. Some of the hâches discovered at Bab-el-Moluk, the Tomb of the Kings, at Luxor, were of the types Acheulien, and Mousterien of Mortillet. There were also lance-heads and scrapers. The importance of General Pitt Rivers' explorations consists in the fact that they prove that these palæolithic implements are contemporaneous with the gravel in which some of the tombs are hollowed.

It is not a little strange that the implements of the river-drift then should be of exactly the same types, wherever they have hitherto been discovered. It may be inferred from their identity that the palæolithic man who hunted the arnee and the extinct hippopotami in the forests of India, who wandered over Palestine

and the valley of the Nile, who hunted the wild-boar and stag, the mammoth, and possibly the pigmy hippopotamus in the Mediterranean region, was in the same rude stage of civilisation as the hunter of the reindeer, bison, woolly rhinoceros, and horse in the forests of France and Britain. Here we are face to face with a condition of primeval savagery formerly universal.

NOVEMBER 22ND, 1881.

HYDE CLARKE, Esq., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following presents were announced, and the thanks of the meeting voted to the respective donors :—

FOR THE LIBRARY.

From Sir JOHN LUBBOCK, Bart., F.R.S.—A collection of pamphlets, by various authors, bearing upon Anthropological Subjects.

From LUCIEN CARR, Esq.—Report of the United States Geographical Surveys west of the 100th Meridian. Extract from Part 1, Vol. VII, Archæology.

From Dr. HOFFMAN.—The Gesture Speech of Man. By Colonel Garrick Mallery.

From the AUTHOR.—Corrigenda and Explanations of the Text of Shakespere. By George Gould.

—— Notes sur l'archéologie préhistorique en Portugal. By Em. Cartailhac.

—— Die statistischen Erhebungen über die Farbe der Augen, der Haare und der Haut in den Schulen der Schweiz. By Professor Dr. Kollmann.

—— On the so-called Chukchi and Namollo people of Eastern Siberia. By W. H. Dall.

From the STATE BOARD OF HEALTH OF MASSACHUSETTS.—Second Annual Report, 1880. Supplement containing Report and Papers on Public Health.

—— Thirty-ninth Report to the Legislature of Massachusetts relating to the Registry and Return of Births, Marriages, and Deaths in the Commonwealth. For the year ending December 31, 1880.

From the INSTITUTION.—Journal of the Royal Institution of Cornwall, Part 1, Vol. VII.

From the INSTITUTE.—Catalogue of the Library of the Royal Colonial Institute, October, 1881.
From the SOCIETY.—Proceedings of the Birmingham Philosophical Society, Vol. II, Part 2.
—— Journal of the Society of Arts, Nos. 1512, 1513.
—— Journal of the Asiatic Society of Bengal, Vol. L, No. 243.
—— Journal and Proceedings of the Royal Society of New South Wales, 1880.
—— Bulletin de la Société Impériale des Naturalistes de Moscou, 1881, No. 1.
—— Zwanzigster Bericht der Oberhessischen Gesellschaft für Natur-und Heilkunde.
From the EDITOR.—"Nature," Nos. 627–629.
—— Revue Scientifique. T. XXVIII. Nos. 20, 21.

The election of C. PFOUNDES, Esq., was announced.

The following paper was read by the author:—

Notes on the ASIATIC RELATIONS *of* POLYNESIAN CULTURE.

By EDWARD B. TYLOR, D.C.L., F.R.S., V.P.A.I.

THE following informal remarks are made with the view of bringing some lately noticed facts to bear on the problem of tracing certain drifts of culture, which appear to have been going on for ages, from the interior of Asia over the south-east or Indo-Chinese region and the Indian Archipelago, and thence into the island groups of Melanesia and Polynesia, even touching points of Australia. Of late years several papers on this subject have appeared in the "Journal of the Anthropological Institute," among them Colonel Yule's tracing of Asiatic customs into the Indian Archipelago, and Mr. Keane's account of recent researches on the Khmer language of Cambodia as related to the Oceanic tongues.

The author of the present remarks has mentioned the spread of Asiatic games over the Oceanic islands, and the wide acceptance there of the cosmic-theological doctrine of the world being divided into upper and lower stages, seven or more in number, an idea which seems plainly a broken-down remnant of the Brahmanic and Buddhistic doctrine of series of successive heavens and hells, itself apparently the outcome of the theory of concentric planet-spheres, known to the Pythagorean philosophy, and seemingly traceable to yet older Babylonian astronomical ideas, to which the seven-staged temple of the seven planets at Birs-Nimrud still bears witness. The theory of the Asiatic drifts of culture over the Pacific having now a

substantial basis, it is desirable to call attention from time to time to points likely to affect it.

Mr. Carl Bock's lately published "Head Hunters of Borneo," gives a clearer idea than heretofore of the civilisation of the Dayaks, as holding an intermediate place between the Hindu civilisation, which has acted on them both in its Brahmanic and Buddhistic form, and the lower culture of the South Sea Islands. Had this traveller taken his ideas of Dayak architecture only from their village-houses, he would have underrated the traditions of ornamental design and artistic skill which he discovered when allowed to visit and sketch the secluded burial-houses of the royal families, structures on posts, adorned with animal carvings and wooden sculpture of remarkable lightness and beauty, the carved roof-projections somewhat reminding us of Cambodia and Siam. To those who have examined such types of architecture in the Malay Archipelago, it cannot seem probable that Polynesian architectural design, such as is seen in New Zealand, was the result of merely native development, but rather that it involves inherited, though broken-down traditions of Asiatic art. Attempts thus to connect Polynesia with Asia have not yet been carried far in detail, except perhaps in tracing the dwellings supported on posts or piles from such Asiatic districts as Asam far away into the ocean islands, and in General Pitt Rivers' identification of the Buddhist loop-coil ornament with a similar pattern used in New Guinea and New Zealand.

It seems worth notice that one of the Dayak musical instruments figured by Mr. Bock lies in an instructive way on the supposed line of drift of civilisation. This is the nose-flute (*op. cit.*, Plate XIX, fig. 2) a specimen of which from his collection has come to the British Museum. There is a drawing in Williams and Calvert's "Fiji and Fijians," p. 163, which shows a native girl performing on this instrument with the right nostril, while she stops the other with the thumb. In the Polynesian Islands, from the time of Cook's voyages, there are several mentions of the nose-flute. Ellis's account of the *vivo* of the Society Islands ("Polynesian Researches," Vol. i, p. 197) describes its being played much after the Fijian manner, but usually with the left nostril, and it is an instance of the slight variations of custom which establish themselves as fashions, that Mariner's "Tonga Islands," Vol. ii, p. 332, describes the *fango fango* as always filled by the right nostril. The instrument is commended by travellers for its soft plaintive tones, which often served as an accompaniment to singing. It may be traced as far as New Zealand (*see* Williams, "New Zealand Dictionary," s. v. *Kōauau*). In Waitz, Vol. vi, p. 752, it is

stated to have been observed at Port Essington, in North Australia, where probably it had been introduced by Malay traders. In all these districts the nose-flute seems not to have any practical reason, at least it is hard to imagine that any flute-player should find his nostrils to have any musical advantage over his mouth. In India, however, where the *vansi* or *pungi* have long been filled with the nostrils by snake charmers, performers at the festival of Nila-pûja, &c., a reason for this practice is currently given which may be the true explanation of its origin. A high-caste Hindu will not touch with his mouth a pipe or flute which has touched the mouth of a lower-caste man who made or may have used it, but it does not defile him to blow it with the nostril. This explanation (*see* Engel, "Music of Ancient Nations," p. 59) is stated to me as unquestionable, in answer to an enquiry made of Dr. Sourindro Mohun Tagore, of Calcutta, the best authority on Hindu music. If it be accepted as the real explanation, we may think it probable that the nose-flute, thus introduced for ceremonial reasons, followed the course of Hindu colonisation and influence, so as to become established for ordinary musical purposes in islands of the Pacific where its ceremonial caste-origin was unknown. Another Asiatic musical instrument which has found its way far out into the Indian Islands, is the simple kind of jew's harp made of a slip of bamboo.

Professor Adolf Bastian's lately published "Heilige Sage der Polynesier" gives, among the valuable results of an anthropological journey, some fresh details as to the Maori and Hawaiian mythology, which suggest to him the thought of derivation from Old World religion and philosophy. Are these, he asks, the simple playful children of nature, whom we look down on from our heights, as on men climbing the lowest steps in the development-ladder of civilisation, and yet out of whose dark primeval night there sound chords of remotest and earliest creation-history? In the Polynesian creation-poems of evolution, from zoophytes and insects to fish and pigs and man, or along the metaphysical stages of existence beginning with night, nothing, ignorance, which Bastian compares with the Buddhist chain of existences, there is, perhaps, rather a likeness in principle than an absolutely proved connection in detail with the mystic philosophies of Asia. To come to something more definite in mythological resemblance and perhaps connection, Professor Bastian lays stress, not for the first time, on the similarity between the Polynesian myth of the land being a huge fish drawn up from the depth of the ocean, and the old Scandinavian myth of Thor fishing up the great earth snake, the Midgard-worm. The resemblances are, indeed, remarkable,

even in minor points, as when in the Norseman's tale, Thor goes out in the boat with Ymir, but is obliged to provide his own bait, much as in the New Zealand story is done to Maui by his brothers. Even the name of the ox Himinbrjót, or Heaven-breaker, whose head Thor takes for his bait, reappears in the Hawaiian mythology, where the noonday sun is called the Heaven-splitter. Looking at the myth of the raising of the land-fish in its different forms in the South Sea Islands, its being a myth of Day and Night is hardly doubtful, for the fisher who hauls up the earth from the abyss below is called in one version Noon, and in another Day, while the statement that Maui's fish, the North Island of New Zealand, was drawn up from the region of the underworld of night, occurs in the most distinct way. Without asserting a positive connection between the South Sea Island and the Scandinavian stories, the subject may be taken as pointing to further enquiry likely to lead to interesting results. The possibility of such connection in mythology between the South Sea Islands and Northern Europe is proved almost beyond dispute by the occurrence in both districts of versions of the Swan-maiden or Swan-coat story, where a heavenly nymph comes down to earth to bathe, and is seized by a mortal man, who makes her his wife, but at last she flies back to her home in the sky. The original of the story may be Aryan, from Central Asia, whence it found its way, perhaps in times of no great antiquity, westward over Europe, and eastward down to the Indian Ocean, where one of its best versions is found in Celebes, another lying yet further across the ocean in New Zealand (*see* Tylor "Early History of Mankind," p. 355).

The present slight notes, only to be taken as suggestions in a problem which has to be worked out more elaborately, refer not to questions of race, but merely to the drift of civilisation from Asia across the further Eastern and Oceanic districts. How far this culture was carried by actual migration of tribes, or by slighter influences of intercourse of races with one another, is a difficult problem on which it would be premature to enter here.

Discussion.

Mr. A. H. Keane expressed the pleasure with which he had listened to Mr. Tylor's able paper, tending as it did to bring the Continental and Oceanic races into still closer connection. At the same time he could not accept the numerous points of resemblance in manners, customs, and habitations, as arguments strengthening the position he had himself taken with regard to the fundamental

unity of those races. These common features could at most prove nothing more than later contact, and the spread of Asiatic culture to the adjacent Eastern Archipelago. For the history of civilisation the paper was very valuable, and seemed to show that intercourse had been established between the more advanced Eastern peoples at a far more remote epoch than is commonly supposed.

Dr. HACK TUKE said he hardly thought the difficulty or criticism suggested by the last speaker (Mr. Keane), namely, that Dr. Tylor's argument might prove an example of *quod nimis probat, nihil probat*, would really be so if used with the caution which Dr. Tylor would no doubt employ. In the lecture on Games, for instance, which he had heard him deliver at the Royal Institution, he remembered that in taking kite-flying as an illustration, he pointed out that that game alone would not be an evidence of the contact of two nations, but that it might fairly be so if the kites were constructed in a special manner in both instances. The value of this kind of reasoning altogether depended upon the care with which it was employed. Again, he understood the author of the paper just read to employ this argument to prove, not identity of races—for of that it could be no proof—but that there had been contact and intercourse between them. Whether the instance chiefly referred to—that of the nose-flute—was a convincing instance or not, he did not feel prepared to say. It certainly did seem possible that different people, without copying the custom, might independently use their noses instead of their mouths to blow with. On other points he regarded Dr. Tylor's paper as a fair proof that the stream of civilisation, or rather habits and customs, had spread from the Asiatic continent to these islands, and regarded it as an illustration of the kind of reasoning applied to ethnic questions, in which Dr. Tylor appeared to him to excel.

M. DE LA COUPERIE, Mr. PARK HARRISON, and the CHAIRMAN also took part in the discussion.

Dr. TYLOR stated, in reply to a question, that although the doctrine of the planet-spheres first appears in a distinct form among the early Greek astronomers, there are strong grounds for inferring its connection with the seven stages of the Babylonian planet-temples. With regard to the question of race-connection between Polynesia and Asia, his present argument of course in no way opposed this, but could contribute nothing to its establishment, such things as musical instruments and myths migrating from nation to nation by mere intercourse, quite independently of race and language.

Dr. TYLOR, in the absence of the author, read the following paper:—

On Fijian Riddles. By the Rev. Lorimer Fison, M.A.

Introduction.

The riddle is called in Fiji *Vákavătavătaīralángi*, a word which doubtless has something of great interest hidden in it. *Vatavata* is a house built on piles; *i* = *of*; *ra* is the plural sign used before the names of chiefs; and *langi* is sky.

In east Fiji the word is *Vákasīrindrōndrōlángi*. *Siri* (= Mbau *siro*) means to come down from a height; *ndrondrolangi* is the rainbow. The explanation given by the natives here is that, as the rainbow starting from the middle of the arc goes down in two directions, so the riddle has two meanings.

Riddle-propounding is quite an institution in Fiji. Sides are formed, each of which propounds a riddle in its turn, and the party which guesses the greater number is entitled to a feast at the expense of the vanquished. The propounders issue their challenge by chanting *Vatavatairalangi mai tu*—(Here is a riddle). Their opponents accept the challenge by chanting in reply *Mai tulituli thavatu?* a saying not easily translated. Literally *tulituli* is pottery-making, but the word is used colloquially in the general sense of doing anything, *e.g.*, *A thava ko a tulia tiko* = What have you been about? The riddle is then propounded by the spokesman of the party, and their opponents go into consultation.

A point of considerable interest in connection with the word *vatavata* may be noted here. The ordinary Fijian house of any pretensions is built upon an artificial mound; and the greater the chief the higher his house-mound, that of the *Mbure-kalou* (god's house, or rather ancestors' house) being highest of all. "Their house mound is high," said of a family, means that they are of high rank. The *vatavata*, or house on piles, among these people is probably a survival, or perhaps a trace of the commingling of two races with different forms of architecture.

Even when the house is built on the level ground we find a reminiscence of its former elevation in the common invitation to enter *Thambe mai* ("Come *up* hither"). Sibree notes the same phrase in Madagascar, but supposes it to point to a time when the villages were always built on fortified heights ("The Great African Island," p. 156). It seems more likely that it points to the ladder leading up to the house on the mound, or on piles. All this, however, is a digression; but in writing on these subjects one is continually tempted to disgress.

The following riddles about the gun, the white cowry, the two fish, and the cotton-bag, show that riddle-making is still going on in Fiji.

Selected Fijian Riddles.

1. *Riddle.*—I spit, and spit, and spit all the way to Tonga? —*Answer.* The canoe baler, which is kept continually at work in a seaway.

2. *R.*—I stand erect all the way to Tonga?—*A.* The mast.

3. *R.*—I am in soak all the way to Tonga?—*A.* The steer-oar, which is lifted out of the water only when the voyage is over. This explains the following riddle:—

4. *R.*—I dive in Fiji, and come up again at Tonga.

5. *R.*—Two fish are feeding in the sea. One eats with two mouths, the other with only one?—*A.* A double canoe, and a white-man's vessel.

6. *R.*—A little child. When a full-grown man dives, it dives with him. The man is soon breathless, but the child is not?—*A.* A louse!

7. *R.*—A Catholic priest in a long black coat. We go to see him, and he takes off his coat?—*A.* The white cowry. While undisturbed it spreads itself over its shell. When disturbed it retires into the shell.

8. *R.*—A man who carries the "kitchen stuff" with which he is to be eaten?—*A.* The taro (*Arum*) and its leaves. The leaves of the taro are boiled, and eaten together with the tuber.

9. *R.*—Twenty men with white turbans?—*A.* Fingers and toes.

10. *R.*—A land. I squeeze it in my hand, it is hidden. I release it, it is a land again?—*A.* A sponge.

11. *R.*—I enter a house, and run away with it?—*A.* Hermit-crab.

12. *R.*—A lake filled with water. Presently a white cloud rises in the midst, and drinks the lake dry. Then the cloud grows, and has leaves?—*A.* The cocoanut. When about to shoot, the milk solidifies into a soft white substance.

Note.—There are several versions of this riddle, *e.g.*, "A little child leaps into a lake," "a coral rock grows up in the *ndaveta*, or reef-entrance," &c.

13. *R.*—Grass wraps stone, stone wraps food. Literally, "Wrapping, Sir Grass wraps Sir Stone. Wrapping, Sir Stone wraps Sir Food"?—*A.* The cocoanut with its fibrous husk, hard shell, and kernel.

Note.—There are numerous riddles of this kind.

14. *R.*—A man. When he is born, he does not cry; while he is growing he does not cry; when he is full-grown he does not

cry; but when he is very old then he weeps?—*A.* The cocoanut which sheds its milk only when it begins to decay.

Note.—Any number of this sort of riddle might be given, *e.g.*, "A man—when a child he was clothed, now that he is grown up he scorns clothing;" the bamboo, which sheds its sheathing.

15. *R.*—I pierce the world, and come out on the other side?—*A.* The root of the Ngi grass which frequently grows completely through the growing yam.

16. *R.*—Two men fight every day and all the day. Their fighting ceases at night, and begins afresh in the morning?—*A.* The eyes.

17. *R.*—Far to Mbulu (Hades), far to Langi, (Sky)?—*A.* The stopper of the waterpot.

18. *R.*—It speaks as I take it to the salt-water, it is silent as I return?—*A.* The *kitu*, or large cocoanut shell, used for carrying salt water. As it goes empty to the beach the wind blowing across its orifices, causes it to sound; when full of water it emits no sound.

19. *R.*—There is a chief who only speaks, and fowls, and pigs and men fall dead before him?—A gun.

20. *R.*—A little child runs to and fro. As it runs a mist arises, and then the sun appears?—*A.* The fire-rubber, which in Fiji represents the fire-drill of other lands.

21. *R.*—The chiefs are in council. A base-born fellow comes and scatters them?—*A.* The stones used in heating the Fijian oven. When they are hot enough a stick is used to stir them up, and arrange them at the bottom of the oven. They are heaped together while being heated.

22. *R.*—Three fish, one on the top of the other. The shark below, the sting-ray in the middle, and the mullet leaps on the top?—*A.* The board on which the bark of the paper mulberry is beaten into *masi* (Tonga *tapa*) or native cloth; the cloth lying upon it; and the *ike*, or mallet with which the bark is beaten.

23. *R.*—White water on this side, white water on that side, deep water (*waitui loaloa* = dark coloured saltwater) in the middle. (Or shall we say "breakers on this side, breakers on that side, deep water in the middle"—literally "White water on this side, white water on that side, black water in the middle." *Waitui loaloa*—black or dark salt water, is used for "deep-water")—*A.* The eye.

24. *R.*—There are twelve women who conceive at different times, but all give birth on the same day?—*A.* A nest of eggs.

25. *R.*—A child who reaches up to the shelf. He can reach

the big upper shelf, but he cannot touch the little lower shelf. He is too short for it?—*A.* The hand which can touch the shoulder but cannot reach the bend of the arm.

26. *R.*—A stranger who comes to Fiji to eat. His feast is made ready; he eats it all, and is satisfied, eating no more for several months. Then he goes back to his own land, and his belly is emptied?—A cotton-bag.

27. *R.*—A house filled with food, and so straitly shut up, that no man can find the door. Then comes to pass a wonderful thing. The food becomes a man.* Only one man, but he fills the whole house. By-and-bye, he opens the house, leaps outside, and runs away, leaving the house burst and destroyed?—An egg.

28. *R.*—There are two who are always fighting, and to their fighting there is no end. One of them gets the better of the other for a long while. But at last there comes a day when he falls asleep. As he lies sleeping his *tutuvi* (covering) is thick and very heavy also. Then comes his enemy whom he used to conquer, and seats himself upon him, and oppresses him, and triumphs mightily over him?—*A.* Man and grass. In man's lifetime he keeps down the grass in his plantations, &c., but when he dies, and lies under the thick heavy "grave-tutuvi," the grass grows over him.

29. *R.*—A box into which goods are continually poured, but which is never full?—*A. A yalonda*—which the reader may translate "our souls," "our minds," or "our desires," as he pleases.

30. *R.*—There are two from whom we are continually begging. They give without stint or grudging?—*A.* Earth and water.

31. *R.*—In the morning it has four feet, and in the broad day it has two feet; when the sun is near setting it has three feet?—*A.* A man.

When I first heard this sphinx-riddle, more than 100 natives were present. "You got that from white man's land," I said, and straightway there arose a clamour of denial. Old men declared then, and have often since assured me, that they used to hear the riddle when they were little children.

I subjoin a specimen of a Fijian fable.

The Teri† and the Rat.

The *teri* and the rat were great friends. One day they found a bunch of bananas, "I'll climb after those bananas," said the *teri*, "you stay below while I climb." "All right," said the rat.

* There is a nice play upon words here, which is lost in the translation. *Tamata* means both "man" and "addled."

† *Teri*, a long-legged bird haunting the muddy banks of rivers.

So the *teri* climbed up, and ate the bananas, and threw down the skins to the rat.

Then said Mr.* Rat, "Let us go to the reef," and there he found a *vasua* (gigantic oyster). He called his friend, "Come and take this food." The *vasua* was open, and Mr. Teri put in his foot to scratch out the flesh, whereupon the *vasua* shells closed upon him, and held him in a vice. He cried out "Alas! Sir Rat, I perish!" The rat said, "That pays you out for the bananas. You ate the good of them and made me wretched with the worthless part. Stay there and be drowned when the tide makes. As for me I am going to return alive to the shore."

I cannot resist the temptation to add the following "moral," appended to the foregoing fable by one of my Fijian students. I translate from his MS. now before me.

The *teri* is the rich man. The rat is Lazarus. The bunch of bananas represents the lordly state of Dives, while Lazarus was wretched. The reef is death. The *vasua* which caught the *teri* is the everlasting fire to which Dives went. The land, Heaven is its name.

Dr. E. B. TYLOR then read a paper "On the Affinity of the Melanesian, Malay, and Polynesian Languages," by the Rev. R. H. CODRINGTON. The discussion upon this communication was adjourned until the next meeting.

The following paper was read for the author by the Assistant Secretary:—

On the STATURE *of the* INHABITANTS *of* HUNGARY.

By JOHN BEDDOE, M.D., F.R.S., M.A.I.

SOME attention has of late been paid to anthropometry in Hungary, particularly by Dr. Körösi, and by Dr. Scheiber, of Bucharest. Of the results of their investigations some have considerable interest. For example, Körösi, operating on the recruiting returns for the whole of Hungary, found that the several races of that country stood in the following order, reckoning for the tallest to the shortest. First the Vends on the Styrian frontier, then the Germans, then the Croats, then the Slovaks and Serbs, then the Jazyges (people of Jaszag in Central Hungary, a Turanian race), then the Jews, then the Rumanians, then the Magyars, then the Ruthenians (in the Bukowin I suppose) and lastly the Kunen (query Kumanians).

* *Ra*, the plural sign.

Between the tallest and the shortest of these races he finds an average difference of 32 millimeters, or about 1¼-inch, which is perhaps less than one would have expected.

The mean stature of recruits from 19 to 22 years of age is put by Körösi at 1,631 millimeters (5 feet 4·2 inches). Scheiber calculates it at 1,646 millimeters (5 feet 4·8 inches). The real mean seems to me, on Scheiber's data, to be about 1,650 = 5·5 inches very nearly, and if we allow 17 or 18 millimeters for subsequent growth, which is probably not above the mark, the fully grown Hungarian soldier is about 1,668 millimeters or 5 feet 5⅔ inches in stature. The number excluded for insufficiency of stature is about 9 per cent., the standard being fixed at 1,554 millimeters, about 5 feet 1⅙ inch.

Dr. Scheiber's paper in the "Archiv für Anthropologie" is of great importance. Referring to Körösi's statistics, he points out the greater value of observations dealing with the entire male population of military age; and he accordingly bases his conclusions upon the whole number of young men of twenty years, examined by the recruiting authorities, whether passed or not, in five counties of Western Hungary, viz., Budapesth. Stuhlweissemburg, Raab, Wesprim, and Tolnau. These he divides according to their nationalities into Magyars, Germans, Slavs, and Jews; he also separates the cities of Budapesth, Stuhlweissemburg, and Raab from their respective counties, but in this second analysis takes no account of race.

In stating his results he gives the mean and not the average. Neither method would indicate the full actual stature, as the recruiting officers set down the measurements in Austrian inches, omitting fractions. It is probable that the officers, except at the point where the question of exemption for insufficient stature comes in, and where the interest of the examinee renders him anxious for accuracy, will assign to each inch a few individuals who are really below the line, but approach it within a very small fraction: thus, against the heading 64 inches will be placed the names of men who measure 63·9 inches, as well as of those who reach 64·8 inches. The true average, and the true mean, would probably be about 64·4 inches. Of these considerations Dr. Scheiber takes no heed; and in every instance he simply states the number of millimeters corresponding to the Austrian inch at which the largest number of persons is registered. This method leads to certain incongruities, and usually gives a result below the true mean and the true average.

I have endeavoured to ascertain from Dr. Scheiber's statistics, the exact mean, the standard which would be overpassed by exactly 50 per cent. of the persons measured. The numbers, though considerable, are not sufficient to yield very regular

curves; but I believe I shall be found pretty close to the mark in every case. This mean will, I believe, correspond pretty exactly with the true average stature.

That of the—

Germans	is	1,646 met.	=	64·8 inch.
Jews	„	1,638 „	=	64·5 „
Slavs	about	1,636 „	=	64·4 „
Magyars	„	1,636 „	=	64·4 „

The addition of 17 or 18 millimeters or about 6 or 7 inches, to these figures, would probably give, approximately, the average stature of full-grown adults. In making this addition I follow Quetelet: Roberts finds no such increase in young Englishmen of the upper classes, but these Hungarians are mostly peasants, and growth may probably continue in them for some years beyond twenty. The results will be: for the German adult, 5 feet 5½ inches, for the Magyar and Slav, 5 feet 5 inches.

Of very tall men (over 1,790 millimeters) the Germans yield the most, next the Jews, then the Slavs, and the Magyars the fewest. Of very short men (under 1,474 millimeters) the Jews have the fewest, next the Germans, then the Slavs, and the Magyars most.

Dr. Scheiber in Hungary finds the inhabitants of cities taller than those of rural districts, as Quetelet did in Belgium, whereas the rule in England is the reverse. Thus:—

Budapesth	city	1,650,	country	1,633	m.m.
Stuhlweissemburg	do.	1,662	do.	1,640	„
Raab	do.	1,642	do.	1,630	„

Race may have a little to do with these differences, for the Germans and the Jews are probably most numerous in the cities. But it will not sufficiently explain the phenomena, for the citizens of Budapesth, and still more those of Stuhlweissemburg, are taller than they ought to be, even if they all belonged to the tallest (the German) race. Quetelet thought the Belgian peasants continued to grow longer than the citizens; and this is probable, but not proven. The peasants of Hungary live in villages, and are not scattered over the country.

Certain anomalies remain to be noticed, indicating that other factors besides race and aggregation may influence stature. If it were not so, the most Germanic and the most urban counties should yield the highest averages; the most Magyar and rural ones the lowest. But this is not exactly the case. Stuhlweissemburg, which has the tallest men, is one of the most Magyar and least German counties; and the city is comparatively small.

The stature of the Hungarians may appear low when compared with that of the British in general; but it is not so in comparison with that of some other peoples of Western Europe, of the Bretons, for example, or the Ligurian race in the Apennines. Even in England, in large towns and manufacturing districts, at least, if not in limited rural tracts, communities may be found who descend below the average stature of Hungary.

DECEMBER 13TH, 1881.

HYDE CLARKE, Esq., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following presents were announced, and thanks voted to the respective donors :—

FOR THE LIBRARY.

From Dr. HOFFMAN.—Zuni and the Zunians. By Tilly E. Stevenson.
—— Dr. J. EVANS.—Der Urmensch. By Wenzel Krizek.
From the AUTHOR.—Grottes de la Vallée du Petit-Morin. By Joseph de Baye.
—— L'art Étrusque en Champagne. By Joseph de Baye.
—— Les Grottes à Sculptures de la Vallée du Petit-Morin. By Joseph de Baye.
—— Grottes de Baye. Pointes de Flèches en Silex a tranchant transversal. By M. Joseph de Baye.
—— Notice sur les Grottes préhistoriques de la Marne. By M. Joseph de Baye.
—— Les Amulettes Craniennes à l'age de la pierre polie. By M. Joseph de Baye.
—— The new Infidelity. By Augustus Radcliffe Grote.
—— The Origin of Civilization and the Primitive Condition of Man. By Sir John Lubbock.
—— Observations on Cup-shaped and other Lapidarian Sculptures in the Old World and in America. By Charles Rau.
—— Die Colonisation Afrikas (A) Die Franzosen in Tunis. By Dr. Emil Holub.
—— First Annual Report of the U. S. Geological Survey, 1880. By Clarence King.
From the BERLIN ANTHROPOLOGICAL SOCIETY.— Zeitschrift für Ethnologie, 1881. Heft 5.
From the GERMAN ANTHROPOLOGICAL SOCIETY.— Correspondenz-Blatt, November, 1881.

From the PUBLIC FREE LIBRARIES COMMITTEE.— Twenty-ninth Annual Report to the Council of the City of Manchester, on the working of the Public Free Libraries, 1880–81.

From the R. DANISH ACADEMY OF SCIENCES.—Oversigt over det Kongelige Danske Videnskabernes Selskabs, 1881, No. 2.

FROM THE ACADEMY.—Rozprawy i Sprawozdania z Posiedzeń wydzialu Matematyczno—Przyrodniczego Akademii Umiejętności. T. VIII.

—— Zbiór Wiadomości do Antropologii Krajowéj wydawany staraniem Komisyi Antropologicznéj. Akad: Umiejęt: w Krakowie. T. V.

—— Zabytki Przedhistoryczne ziem Polskich wydawane staraniem Komisyi Archeologicznéj Akad: Umiej: w Krakowie. Seryja 1. Zeszyt. 2.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1514–1516.

—— Transactions and Proceedings of the Royal Society of Victoria, Vol. XVII.

—— Bulletin de la Société des Sciences Naturelles de Neuchatel. T. XII.

—— Proceedings of the Royal Geographical Society, December, 1881.

—— Proceedings of the Society of Biblical Archæology, November, 1880, June, 1881.

—— Proceedings of the Philosophical Society of Glasgow, Vol. XIII, No 1.

From the CONDUCTOR.—The Scientific Roll, November 1881, No. 5. Conducted by Alex. Ramsay, F.G.S.

From the EDITOR.—Revue Scientifique. T. XXVIII. Nos. 22-24.

—— "Nature," Nos. 630-632.

—— The Bibliographer, No. 1.

—— Matériaux pour l'histoire de l'homme. T. XII, 8e–9e liv.

It was announced that Professor MANTEGAZZA, M. GABRIEL DE MORTILLET, and Professor A. F. POTT had been elected Honorary Members; and Mr. CHARLES HANCOCK an Ordinary Member of the Institute.

The discussion on the Rev. R. H. Codrington's paper was continued by Mr. A. H. Keane and Mr. Hyde Clarke.

The following paper was then read by the author:—

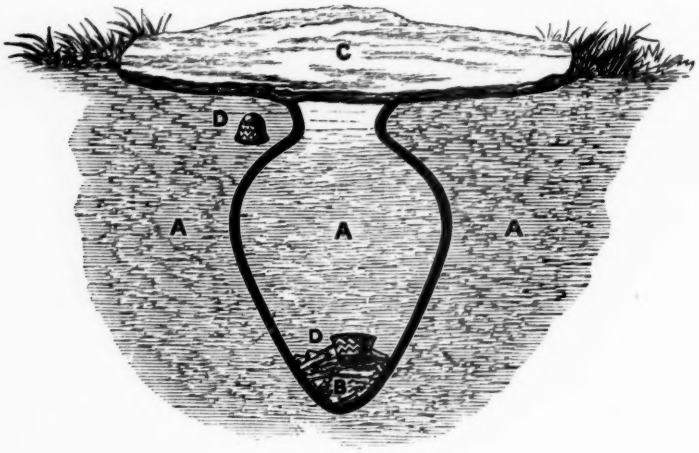
Some Vestiges of GIRL SACRIFICES, JAR BURIAL, *and* CONTRACTED INTERMENTS *in* INDIA *and the* EAST.—By M. J. WALHOUSE, Esq., F.R.A.S., M.A.I.

THE great megalithic forms of interment consisting of kistvaens or sepulchral underground chambers, formed of four huge slabs covered with an immense capstone, and surrounded by a circle of standing stones, which abound in nearly all the provinces of the Madras Presidency, have often been described; but beside these, there is another description of burial, so far as I know, peculiar to the region of the western coast from Malabar to Cape Comorin. This consists of huge mortuary jars or urns, pear-shaped, usually about 5 feet high by 4 feet in girth round the shoulders, and tapering to a point at bottom. They are of coarse, thick red ware, wide-mouthed, generally with a rude incised cross pattern round the neck. These great urns are buried upright in the ground, not in any cist or chamber, and a large flat stone or slab is laid over them, but no circle of stones ever placed around.

My own experience of this form of burial has been chiefly on the western border of Coimbatore, an inland province, bounded on the west by Malabar; I never found it on the eastern side of the province, whose western frontier seems the limit of its extension eastward, and also of the circle-surrounded kistvaen form westward, for that is unknown in Malabar, while both forms are found side by side within the western boundaries of Coimbatore.

These great jars are filled with earth, containing at the bottom a quantity of bones broken small, some bits of iron, and occasionally a small urn also filled with bits of bone; or sometimes with clean sand, red or white, which must have been brought from a distance. In Coimbatore I not unfrequently found several small pots or urns placed mouth-downwards on their shoulders.

It was very difficult to extract one of these immense vessels entire, the soil in Coimbatore being loose and loamy, and the jars buried in it being unprotected by any chamber, the great overlying stone had generally sunk, and crushed or split them all through. In Malabar they are better preserved: the stiff, laterite earth of that district hardens into rock soon after being excavated, and would support any weight. It may be noted that there, though masses of hardened laterite cover the surface, and it is the material commonly used for buildings, walls, &c., the slab stones placed over the jars are always of granite, which



SECTION OF AN INDIAN JAR-BURIAL.

A earth and sand. B splintered bones and pieces of iron. C granite slab. DD small jars.

only crops up here and there, and must often have been brought from a considerable distance. Here, too, small urns found with the greater are occasionally filled with clean sand not occurring near, and it is curious that Colonel Meadows Taylor describes cairns and urns found by him in Northumberland as filled with "a fine red earth, not belonging to the locality, which is peat," and Canon Greenwell considers that the stones of some enormous cists uncovered by him in Yorkshire must have been transported for at least twelve miles.

The same description of burials associated with colossal jars also occurs in the kingdoms of Cochin and Travancore, south of Malabar, in the strip of flat country between the mountains and the Indian Ocean. There the jars are called "Mănchăra" (earth-jars), and are also found buried upright, covered with heavy granite slabs, and containing pieces of bone and iron. The Rev. H. Baker, of the Travancore Mission, informed me that the natives affirmed that they contain the remains of sacrificed virgins. All the petty Rajahs are said to have sacrificed virgins on the boundaries of their estates to protect them from incursions, and to ratify their engagements with neighbouring chiefs; and it is suggested that the pieces of covered iron found in the jars with the bones, may be the remains of sacrificial knives. Sacrifices of young girls are known to have been offered, even up to British occupation, and an existing family preserves in itself a curious vestige. "In old days, at a temple of Bhagarathi or Kali, in Travancore, a young woman pregnant with her first

child, was on stated occasions chosen and brought in front of the shrine. She was then beheaded with one blow, so that her head rolled before the image, on which her blood was then sprinkled. This was done till 1744. In the next year a possession of the goddess came upon a bystander when the sacrifice was about to take place, directing it should be discontinued. The posterity of the woman and child spared on the last occasion are now called Adichamar, and live together in a small community of forty or fifty souls. They receive the offerings made to the shrine, and are exempted from Government taxes. A public sacrifice of a sheep is now annually offered in place of, and in the same manner as, the girls of old." ("The Land of Charity," by the Rev. S. Mateer, of the Travancore Mission.) I have seen descendants of that family, and heard from them the same account.

In other districts I have heard also of instances of girl sacrifice. In the province of Bellari there is an extensive tank on which the irrigation of a considerable tract depends. On the embankment there is a rude stone image of a female at the foot of a great old peepul tree, which is worshipped, and offerings of flowers made at stated times. The story runs that a century or more ago the tank became so full of water that the sluices could not carry it off, and the embankment near them began to crumble and give way. As the villagers beheld this a goddess possessed a woman, who exclaimed, "I am Ganga Bhavâni" (personifying the flood); "if you will feed me with a human sacrifice, I will stop; if not, I will not stop. As the villagers were taking counsel on this, the goddess possessed a girl not yet grown up, named Musalamma, the seventh and youngest child of a farmer, and said to her 'Become thou the sacrifice.' She was accordingly prepared for a sacrifice, adorned as a bride, and holding a lime, she came in procession to the embankment, did homage to her father and the villagers, and said 'Ganga Bhavâni has commanded me. I go to be a sacrifice.' A great gap had now opened in the embankment. She went and stood in it; they poured in earth and stones upon her, and the bank stood firm." It is said that for long after, if people passing by the spot called out to her "Musalamma!" she would reply "Ho!" as the Norse heroes used to speak from their grave-mounds; but now she never answers, though her image is still worshipped. This story is doubtless true, and quite Hindu in the manner in which the deed is glossed over by representing the sacrifice as voluntary, and like instances were probably frequent in the obscure times of old Indian village life, especially if encouraged by equally ruthless observances amongst the superior classes, if the popular stories of maiden sacrifices connected with the great burial-jars

are to be believed. The idea is widely spread and most likely founded on truth, and I once met with another phase of its existence. Wandering in an extensive jungle at the foot of a mountain-range in South Coimbatore, I came upon a solitary conical hill, rising perhaps 300 feet above the jungle in which it stood islanded, like a rock at sea. Its sides for half their height rose in steep slopes covered with thorny bushes, and then ended in a horn or peak of sheer mural precipice all round, except on one side where a narrow rift running up the rocky wall afforded a difficult access to the top. Seeing the ruins of an old fort on the summit, and hearing it had been a stronghold of one of the Polygars, or native barons, famous in the wars of Coote and Stringer Lawrence, I determined to go up, and scrambled with no small toil up the ladder-like rift which permitted only one to ascend at a time. On reaching the top, heaps of big stones and lumps of rock neatly piled together along the brim long years ago, and now overgrown with grass and creepers, showed what manner of reception the holders of the fort had prepared for escaladers of their eyrie. The rift emerged just before the one narrow entrance in the wall, that enclosed the area at top and followed the edge of the precipice all round, and which, though crumbling and ruinous, was of good thick masonry. The interior was of no great extent, the remains of two or three fallen buildings, a natural hollow in the rock rimmed with brickwork for storing water, and a tiny dilapidated shrine, were all the traces left of its former occupiers. It might have held 200 men, and was probably rather a place of refuge for the Polygar in time of need; whence, surrounded by pathless thorny jungle, he could watch any hostile approach, than a permanent fortress.

After looking round, as I was preparing to leave, an attendant drew my attention to a long narrow niche in the thick part of the wall, just within the single entrance to the fort, and informed me that the luck and safety of the stronghold had resided there. I did not comprehend him for some time, till after much circumlocution, for it is unlucky to speak of such matters directly, I learnt that when the fort was completed a young girl had been immured and built up in that niche, as a spell to ensure the impregnability of the fort against all enemies. The niche had been formed in the stone masonry, and filled up in front with brickwork, which had cracked and fallen out almost to the bottom. I looked inside, but could see no relics of the victim. The tradition, however, I found universally believed, and is, I think, true. The niche had just the appearance of having been constructed for the purpose assigned, and for no other use. It was strange to look at the long, narrow, ragged opening—

> "Who enters at such grisly door
> Shall ne'er, I ween, find exit more,"

and to think that the dreadful monastic punishments of erring nuns and monks in mediæval Europe had had their counterparts in the far East.

I afterwards heard of two or three other forts reputed to have been placed under such grim guardianship when built, but have mislaid their names and localities. Instances are on record of temples and cities in various ages and countries having, at their foundation, been consecrated by this cruel rite. It is enough now to mention Mandalay, the present capital of Burmah, a city drenched in blood throughout its short existence. When begun, in 1858, fifty-two persons of both sexes and various ages, but mostly girls, were buried alive to feed and propitiate the *Nât-zos*, or demons; three being buried under each of the twelve gates, one under each gate-post bearing the name of the entrance, and one at each of the four corners of the city. Propitiation of unseen powers is the idea ruling all these sacrifices, and the more pure and innocent the victims the more acceptable the offering is held to be. Who can reckon up the hosts of young lives that, from the days of Jeptha's daughter and Iphigenia, and doubtless long before, have been pitifully cut short in obedience to this feeling?—a feeling that must have deep roots and meaning, for the highest races did not shrink from it. Indeed, the idea was familiar to classical antiquity. The Roman satirist complained that young people in schools heard nothing of the common things of life, but only of tyrants commanding sons to cut off their fathers' heads, or *oracles ordering three or more virgins to be immolated in time of pestilence*, and the like wild themes.

And again, in the noblest reproduction of Greek drama of our days, Mr. Swinburne has taken for his subject the self-sacrifice, famous and sacred through all Athenian annals, of a noble maiden to rescue her city from the anger of the gods, who required,

> "For the land's life her death and maiden blood,
> To save a maiden city."—*Erechtheus.*

And it must not be forgotten that atonement by innocent blood is a central dogma in the theology of Christendom.

But detailing these instances has made us lose sight of the sacrifices said to have been connected with the great burial-jars, in Travancore, at least. I did not hear any such tradition when exploring similar remains in Coimbatore, perhaps because I had not then heard the Travancore account, and natives do not

willingly volunteer such information unasked. Moreover, I found more than once several of these huge urn-interments close together, and it seems unlikely there would have been many sacrifices to establish boundaries in one spot; and again, the sacrificial theory would bring these monuments down to comparatively modern times, whereas they have a pre-historic appearance, like the kistvaens or stone circles. However, there is no saying what may have been done in these remote regions of India a thousand years ago. Mr. Baker also informed me, with reference to these great urns or jars, that near Chaughât, in Cochin, a large subterranean vault, with a passage leading to it, excavated in the laterite, had been found filled with them, which, on being handled, all fell to pieces.

Now, when examining Dr. Schliemann's Trojan Collection, I noticed, as doubtless others may have done, a colossal jar of exactly the same form and appearance as the Indian burial-jars, being nearly 6 feet high, and tapering to a point from the shoulders, where it was 4½ feet across. It was marked in the catalogue, "Probably a substitute for a cellar," and in his book, "Troy, and its Remains," Dr. Schliemann, at page 290, gives an illustration of a row of these immense jars found side by side underground, and thinks they were used for storing wine, oil, or grain. Such, indeed, may have been their intention, but the specimen in the Museum reminded me strongly of the great Indian burial-jars, and so did the illustration of the collection underground of the sepulchral vault-full in Cochin. Sir W. Ouseley, in his "Travels in Persia," &c., Vol. I, p. 218, records having met with a somewhat similar instance of great urn-burial in the plain of Busheyr, where urns of a peculiar shape, buried in a peculiar way, abounded about 2 feet below the surface; they were cylindrical, 4 feet long with pointed ends, about 2½ feet in circumference, made of clay, quite plain, and filled with sand and human bones. They were laid horizontally in a straight line, end to end, and said to exist in hundreds. Sir William himself disinterred three or four, and found them full of skulls and bones, which must have been put in piecemeal. He could hear of such urns being found nowhere but at Busheyr, and no such custom ever existed amongst Mussulmans or Pârsis, the present inhabitants.

I have also met with a case of interment in America much resembling the Indian megalithic jar-burials described above. Near the Guatwita Lake, in Missouri, Captain Cochrane opened some ancient graves, and says, "After removing about a foot of earth and turf we came to an amazingly large stone, 12 feet long, 8 wide, and 9 inches thick, of a kind of sandstone. We had to break it into two pieces, it had rested on a shelf cut all round

the grave in the sandstone in which the grave was hollowed. Beneath it we first came to earth, and then to finely variegated sand, *manifestly different to that of the grave*, and at 8 feet we came to fragments of rude earthenware, and some human bones—thighs and arms—but no skulls or teeth."

The earthenware was probably the fragments of a great urn, in which the remains had been put *piece-meal*, as they must have been in the Indian burial-jars; the overlying stone and foreign sand are also features in common with the latter. It is noteworthy that whereas the custom of burial in earthenware vessels exists nowhere now in Continental Asia, where traces of its ancient use are found, Miss Bird, in her excellent and instructive work "Unbeaten Tracks in Japan," states (Vol. I, p. 291) that "at Onagri large earthenware jars are manufactured, which are much used for interment by the wealthy."

A word remains to be said respecting the strange custom of putting the human remains piece-meal into the urns or jars, as from the smallness of the necks must have been the case, a practice that seems so revolting to our notions. There appears no reason why those big urns should not have been made with mouths large enough to admit corpses entire. Some strange instances of the practice have, however, occurred in Europe. In 1875, when digging in the Villa Aldobrandini, at Rome, an ancient terra-cotta wine-amphora was discovered, containing the bones of a human skeleton of mature age: as the orifice of the jar was but 3 inches in diameter the parts of the body and largest bones must have been cut and forced in. This, however, probably had some connection with sorcery or the superstition of the early centuries, but a still stranger discovery is related by Count Caylus as having been made about the middle of the last century, of the same description but on a prodigious scale. A long subterranean vault or corridor was found under the walls of the Pincio, facing the Villa Borghese, containing some thousand amphoræ fixed in the earth, and each crammed with human bones, mixed with those of horses and oxen, and some small waxen objects. No explanation was ever given of this extraordinary find.

Almost as strange as these piece-meal interments, and in some sort connected with them, if arising from the idea of packing within the smallest compass, is the custom of "contracted burials," with the legs bent closely and the knees brought up to the chin. Archæologists know that this is a common form in prehistoric graves in England and Europe. Dr. Schliemann was much exercised at finding skeletons, presumably of king's and heroes, compressed into "extremely narrow graves" at Mycenæ, and was inclined to surmise it must have been done by

way of insult by some arrogant conqueror.[1] Bodies, however, have been frequently found elsewhere in Europe, in large prehistoric graves, placed on one side, or huddled up in a corner in sitting postures, certainly through no lack of space, and without any conceivable intention of insult. Canon Greenwell often found skeletons in roomy barrows compressed into "the attitude of one who curls himself up to sleep," and thinks that may have been the real meaning of the posture. In America, both North and South, the custom prevailed widely. We read of cists upon the Merrimack river, in Missouri, formed of 6 pieces of flat stone, and only from 25 to 50 inches long, placed in small hillocks, and containing contracted skeletons. In Tennessee and the West similar graves are found, in which bodies had been placed with the legs drawn up together close to the body. Again, at Atarniki, on the bank of the Orinoco, 600 skeletons were found, well preserved, and regularly arranged in baskets; they had all been doubled up and bent together; and at Arica, in an extensive cemetery on a hill-side, bodies are found in holes not more than 3 feet deep, placed in a squatting posture, with the knees drawn up and the hands applied to the side of the head. The compressed and squatting modes of placing the dead, so common in ancient catacombs and cemeteries in Peru and Chili, have been described by Consul Hutchinson and others in the pages of this Journal.

All prehistoric practices survive in some part or other of the world, and Miss Bird in her previously quoted book on Japan, has a curious passage bearing on this subject. After relating that large earthenware jars (she does not mention the size of the necks) are used for interment by the wealthy, she goes on to say that the poorer classes use "two square boxes, one within the other, and the body is placed in the inner box in the usual squatting position. In Japan, after death a body is always laid at length for some hours, with the head to the north, and it is impossible to understand how, when stiffened many hours after death, a body can be pressed into the limited space afforded by even the outermost of the boxes. It has been said that the rigidity of a corpse is overcome by the use of a powder called *dosia*, but this idea is exploded, and the process remains incomprehensible." I can make no suggestion, but will proceed to add finally that in India the anti-Brâhmanical sect known as Jangams or Vîra-Saivas, a sort of Hindu Puritans, always bury their dead in a sitting attitude, and that contracted burials of the complete prehistoric type are practised to day by the Abors,

[1] The doctor might have remembered that Herodotus (iv, 190) expressly reports, that in his time, "all the Libyan nomads bury their dead sitting, *as the Greeks do.*"

on the Dibong river, in the valley of the Brahmaputra, on the north-east frontier of India. Colonel Dalton, in his splendid work on the "Ethnology of Bengal," reports of them, "The rugged rocky soil on which their villages are built has probably originated a unique custom of sepulture, by which very small graves are required. The dead are trussed up so that the chin rests on the knees, and are placed in the small chambers prepared for them in a sitting posture." The custom is not so unique as the Colonel imagined; antiquaries may consider whether the cause assigned by him could have had any weight in determining the contracted posture and small cists of prehistoric interments in Europe. Possibly the Abors may have some other reason or motive, traditional or superstitious, which, if ascertained, might throw light on the meaning of this strange, widespread, and very ancient custom. Perhaps Canon Greenwell's suggestion points to the truth. At the present day nearly all savage people, when resting, sit in a doubled-up or squatting posture, and this may have been chosen for burial as symbolical of repose.

The following paper was then read by the author:—

On the Origin *and* Primitive Home *of the* Semites.

By G. Bertin, Esq., M.A.I.

This is a subject that has been frequently discussed, and in some cases by eminent scholars; if I dare to take it up after them, it is because the conclusions which I bring forward are those which I have arrived at by an independent course of study, having no theory in view; indeed I can say that I was led to these conclusions by the facts themselves, and even when I was not working at the subject.

I could have extended this paper considerably, but I have limited it as far as possible to what is strictly necessary. If required, however, I could bring forward a much greater body of facts and additional proofs. I have also omitted many references which might have necessitated numerous critical notes.

I do not wish to discuss the question of the one or the many centres whence sprang the whole human race, but I wish to limit myself to the question of the primitive home of the Semites. By "primitive home," I understand the country where a people acquired the physical, linguistical, and psychological characteristics which give individuality to a race.

As for the Semites, moreover, few philologists would deny

that their languages, which are the principal test adopted to fix the area of the race, are undoubtedly of secondary development. From whatever source the Semites sprang, they acquired such a marked personality, that they really constituted a new race, with a turn of mind of its own, and with such strong characteristics, that its influence on other races is always easily detected.

In historical times we have an example of such a formation of a race in the origin of the Latin family. But with the Semites the individuality was even more strongly marked, —so strongly, indeed, that assimilation with other races was always, and is still, if not impossible, at least difficult.

At the present day the Semites are represented only by the Arabs; but as far as we can gather from the Assyrian and Egyptian monuments, the Arabs represent the primitive type rather faithfully. They are of medium stature, thin, but muscular, with long spherical heads; the forehead is low and flat, the nose aquiline, the eyes dark, bright, and covered; the hair black and smooth.

These characteristics, which are pretty much those of the Assyrians of the Second Empire, and those represented on the Egyptian monuments, have remained in their purity only in Arabia. The Semites have, in other quarters, become more or less mixed with alien races, Turanian and Aryan, and their type has been accordingly modified.

The linguistic characteristics are much more strongly marked, so much so that it has been said that all the Semitic tongues are merely dialects of one and the same language. The most important philological point is the *triliterism*, that is the peculiar turn of mind which can only conceive a word as being formed of three letters. It is the result of a kind of harmony of meter; when the Semites borrowed a foreign word, they always gave it a triliteral form by doubling one of its letters, or adding an aspirate. We have a great many examples in Assyrian with words borrowed from Akkadian, and in Arabic with words borrowed from Turkish. In the grammar the peculiarities are also striking; the verb, rich in voices, is very poor in tenses, which have always a vagueness as regards time; and even under the influence of Aryan or Turanian tongues, there never has been developed a strict system. There are only two genders, but the feminine is often used as a kind of neuter; the persons in the verb, and the possessive, are expressed by suffixes. These are the characteristics common to all the Semitic tongues.

The Semites may be divided into three branches: 1st, the Arabian; 2nd, the Syrian; and 3rd, the Assyrian.

The Arabs have now nearly absorbed all the other Semitic populations. Of ancient monuments, we have only the Sabæan inscriptions of tribes now extinct. From the Arabs sprang the Ethiopians or Geez, who passed into Abyssinia, and mixed with the natives; we have now their various spoken dialects, such as Tigré, Amharic, &c.

The Syrians or Aramæans were first confined within Syria proper, but extended later all over the Semitic area north of Arabia, till they were absorbed by the Arab invaders. In this class I include the Hebrew and Phœnician speaking tribes, as well as the populations speaking Syriac, and other Aramæan dialects. All those populations, who produced a most brilliant literature, have adopted a more or less corrupted Arabic. We now find only few scattered tribes speaking a decayed Aramæan.

The Assyrians, under which term it is customary to include all the populations of the ancient empires of Mesopotamia, have, as far as their language goes, entirely disappeared, but their tongue and their records are found in the numerous tablets and bricks excavated in the seats of their once powerful empires.

Though it would seem that I have, in this classification, followed exclusively the philologists, I believe that the three great divisions answer to three ethnological groups, each having a physiognomy of its own, and each having played a different part in the history of the race.

At the outset I must notice what we can gather from classical writers. Unfortunately the ancients knew nothing of ethnology, and never divided the human race, save into two classes, Greeks and Barbarians, or Romans and Barbarians, according to the nationality of the writer; and when the Greeks had arrived at the literary period, the Persians were masters of Western Asia, and the Babylonian and Assyrian Empires were but mythical to them. When the Romans took possession of Western Asia, they had to deal only with Greeks, and never troubled themselves much about the natives of their new provinces. We can, therefore, get only a few particulars from the classical authors; which are, no doubt, of great help, but only as far as they have preserved the echoes of old legends, without meaning for those who preserved them, though of the greatest value to modern science.

The studies of modern scholars, with the help of Hebrew and Arabic, made great progress, but the elements of knowledge were, until recent years, too limited to enable them to perceive the whole truth. It is only in this century that the discoveries and deciphering of the cuneiform and hieroglyphic monuments permit us, with the severe criticism of the modern school, to take up the subject with hope of success.

Those modern philologists, who have discussed the subject, have arrived at very different and often opposed conclusions. This cannot surprise those who realise how misleading is lexicography, if not checked by other data.

Scholars have lately taken philology as a guide. Dr. Kremer and Dr. Hommel compare the names of plants and animals, and Signor Guidi goes further still in the way of comparative lexicography. They admit as an axiom that the plants, animals, or objects known to the primitive Semites before their dispersion must have the same names in all the various branches of the family.

I may remark that a slight glance at the Aryan tongues might have demonstrated to them how deceptive is the process they have employed. We are, indeed, far from finding in the Aryan family that accord which we should expect, according to their axiom; thus we have in our European tongues, to give only a single example,—*dog, hund, chien,* &c. And, reversing the process, if we take a root we see it used for very different animals, for example,—*deer, thier,* θηρ, and *fera* convey to the minds very different ideas. Nevertheless, it is on this fragile base that scholars build up the theory of the Babylonian primitive Semitic home.

Even accepting his starting point, I do not see that Dr. Hommel has proved anything; he says that the word *dabu* in Assyrian, דוב (*dôb*) in Hebrew, &c., for *bear,* shows that this animal was known to the primitive Semites before the dispersion; but this root דוב is variously employed even in Hebrew, and the meaning of the Assyrian *dabu* is not at all certain; besides the Arabs to this day used ديب (*dīb*) for "wolf;" the conclusion drawn from the meaning of this root is therefore vitiated. Dr. Hommel also says that if the home of the Semites had been in Arabia they would have been acquainted with the ostrich, for which there is no common name in all the dialects; but he forgets that the ostrich was wild in the very country where he places the Semitic home, Mesopotamia, as shown by Xenophon. It would be easy to demonstrate that the names for *ox* or *bull,* the names for *palm tree,* &c., are as deceptive a guide as that for *bear.*

But I will say more: a careful study of the names of animals and plants will show that the very animals and plants with which a people is most acquainted, have a great number of names; and for this simple reason, that being always under their eyes, many qualificatives and nicknames for them often grow into common names. We have many examples in the Semitic tongues; the bull has several names in Hebrew, in Arabic, &c., as might be expected among pastoral nations. The

ostrich mentioned by Dr. Hommel is called in Hebrew יָעֵן (*Yaen*) "the glutton" רְנָנִים (*renanim*) in plur. "Those which make a stridulous noise," תַּחְמָס (*thakhmos*) "the unclean." This is also evident in the Aryan tongues. It seems, on the contrary, that only plants and animals of foreign extraction have a common name; thus we have in our modern tongues the camel, the tobacco plant, the maize, &c.

Professor Guidi is not more successful when, by employing the same philological process, he argues from the common root for "stream," "sea," "hill," that the first home of the race must have been in Mesopotamia, where there are streams, lakes and hills. Here the same objections can be raised as for the names of animals.

After admitting as a fact this not at all certain hypothesis of Babylonia as the first Semitic home, the three learned scholars, strange to say, turn back to the old theory of a Central Asian origin and describe the road which the Semites probably took before settling in Mesopotamia. This is another example which shows how difficult it is to shake off long accepted ideas.

Professor Sayce and Professor Schrader, with the same help of philology, come to quite different conclusions, and both look upon Arabia as the first home of the Semites. The former says that "the Semitic traditions all point to Arabia as the original home of the race." But, on the contrary, the Jewish, and the Assyrian legends point in an opposite direction. Arabian traditions, if there are any, are quite modern, and do not date back before Islamism, when the Mahometans adopted the Jewish traditions. Professor Schrader, who remarks that the Arabic is the purest of the Semitic dialects, analyses the Arabian names preserved in Assyrian and Sabæan inscriptions, and acknowledges that in many are found names of gods, borrowed from the Assyrians. This is very likely, and therefore detracts much from the value of his theory. Unfortunately, he does not attempt to explain the varied and different characteristics which appear in the numerous Semitic tribes.

The only satisfactory hypothesis will be one by which we can get a clear and sure explanation of all the characteristics, traditions, and philological variations found in the different branches of the Semitic family.

A glance at a map of Western Asia of any epoch will show to the most superficial observer that the extreme eastern end of the Semitic area is at a short distance from the Tigris. The campaigns of the Assyrian kings prove that at no time were there on the eastern frontiers any populations akin to the Semites. Elam, Media, Persia, Armenia were always inhabited by nations of

other races having no affinity, philological or physical, with the Semitic populations of Mesopotamia. If, therefore, we took philology for our only guide, we ought to look to the west of the Tigris for the first home of the Semites.

The traditions contained in the Bible seem to point, it is true, to the east, but they are supported by the evidence neither of history, nor of ethnology, nor of philology; and it is not likely that the Semites would have come from Central Asia and have left behind no population akin to them in language. There is besides strong evidence to show that those traditions of an Asiatic home are not Semitic, but have been borrowed from another race.

The tablets of the library of Assurbanipal brought from Niniveh prove beyond doubt that the legends of the Central Asian origin of the Semites are not Semitic, but Akkadian, *i.e.*, Turanian, and were written on clay tablets long before the time of Moses. The two people who adopted them, the Phœnicians and the Israelites, acknowledge having come from Babylonia; we can therefore admit without rashness that they brought those legends with them from the common stock in Babylonia. We may also notice that those legends have not penetrated into Arabia, where traditions neither of the flood nor of the patriarchal history existed before Mohammed, and it would seem strange that if they had ever been known there, all remembrance of them should have been lost.

Before going further, I must say that I accept entirely the conclusions of the modern scholars who demonstrate a common origin of the Semitic and Hamitic tongues. But as those conclusions have been contested, I must notice the ground on which the theory rests.

The affinity of the two grammars had been noticed long ago by Gesenius and others. All the Semitic pronouns and suffixes can be traced back to the Egyptian;[1] as this is acknowledged by the opponents of a common origin, I need not insist on it. The order of the Semitic sentence is the same as in Egyptian, and it is important to notice especially that the identity exists in the Egyptian of the earliest dynasties.

The common origin is not less strikingly demonstrated by vocabularies.

As the adversaries of this theory object, however, to this evidence, contending that the Egyptian words quoted are of a later Semitic introduction, I have been careful to select for comparison only those Egyptian words which are found on the earliest inscriptions when Egyptian had not yet been subject to

[1] *See* 'Formation of the Semitic tenses,' in the "Transactions of the Royal Asiatic Society," vol. xiv, p. 105.

any Semitic encroachment. I have been through long lists of words, but will limit the quotation to a few striking examples.

Sar (Chief) 6th d. *Sarru* in Ass. (king). שַׂר (leader, prince).

Hes (to escape), 4th d. *Ass. hāsu* (to hasten). חוּשׁ حيس (to escape).

χer (to beat, to vanquish), 4th d. Ass. *garū*, גרה (to fight, to drag, to devastate).

Erpā or *repā* (prince, noble) 4th d. Ass. *rubū* (noble), this root in all the Semitic dialects meant primitively "great," and has been localized also to express the number "four."

The Egyptian word for *tongue* is curious; it is *nes*, which became in Coptic ⲗⲁⲥ, and we have with the same meaning *lis-an* in all the Semitic dialects, *an* being a suffix formative of nouns.

The old root *ab* or *ap* meant originally in Egyptian "mouth," and has retained this meaning in the Falasha *ab*. We have in Egyptian *ap* (to speak, to proclaim, to order, to judge) and it had also the meaning of "father" as "nourisher," retained more clearly in *apt* (to bring up, to suckle) from which word was derived at the times of the last dynasties *apt* with the meaning of "suckling," *i.e.* "child;" there is also in Egyptian *nupa* (udder of cow). In the Semitic tongues we have a parallel list of words: *abu* (father), *ap* (face), *awa* (to breathe) *ibb* (to exclaim). With *n* prefixed (*niphal*) we have *nabu* (to proclaim); *nabiu* (prophet) as in Egyptian *nebiu* (the supporter, *i.e.*, the one who causes to be nourished).

I might multiply examples, but it would extend this paper too much.[1]

The study of Egyptian grammar often gives the key to the Semitic formation. The pronouns are universally recognised to be the same, but we must remember that no doubt the proto-Semites parted from their Hamitic brothers when the grammar was in process of formation. In the earliest Egyptian inscriptions we still see the pronominal roots with a remarkable flexibility, and the pronouns even appear in some cases to be common. We have, for example, the *at* or *t* with the meaning of *generatrix*, as shown by the group , it has formed the feminine article *t*, often merely used as a feminine determinative; we find it also used as an undetermined pronoun *tu* (one, somebody; the French *on*) and forms a kind of passive or reflective voice. The primitive meaning explains the

[1] For the numerals I have, I think, proved their affinities in a paper read before the Society of Biblical Archæology.

hitherto unexplained word *atew* or *tew*, read also *atef* and *tef* (father), which became in Coptic ⲧⲁϥ: the Egyptian *w* is a personal pronoun masculine, in ; we have therefore *generator-he, i.e.*, father. The Copts, who had no doubt retained the meaning of the primitive formation have reversed the terms and said *he-generator*. The root appears with the same uses in the Semitic tongues, it forms the *t* conjugation which has a reflective or passive sense; we have the demonstrative pronoun אתי.

The Shaphel, which exists in Assyrian, Syriac, Arabic, &c., is also explained by the Egyptian, where the formation of this voice is still clearer. The suffix *su* of the third person localised in the feminine in Egyptian is often determined by the *t*, probably to leave no doubt on the mind of the reader; in Assyrian the suffix is retained for both genders, m. *su*, f. *si*. We have the word *su* (man) in Egyptian (the Hebrew יאש), and prefixing the word the factitive or causative voice, Shaphel.

In Egyptian, as in the Semitic tongues, we have the genitive of position, and in the former there are many traces of broken plurals. Besides that Mr. Le Page Renouf has shown that the Egyptian plural often conveys to the mind not an idea of plurality but one of collectiveness, which is the case with the broken plurals.

I think I shall be able to show why, in the first Semitic group (Arabic), the syntax and most of the grammar remained intact, why, in the second (Syrian), the grammar and syntax have been disturbed, and why, in the third (Assyrian), both have been partly lost.

As I have said before, the object of this paper is not to look for the primitive home of mankind, but only of the Semites. As I accept, however, the common origin of the Semites and Hamites, I must notice that no Egyptian tradition, either on the monuments or on papyri, or preserved by classic writers, ever points to Asia as their first country; on the contrary, as Dr. Birch has noticed, all traditions point to the south of the Nile valley. Modern philologists, as Mariette, Dr. Lepsius, Dr. Latham, &c., seem to have accepted this view. If the race had an Asian origin, the Egyptian, as the oldest and earliest civilised people of the family, would have retained some recollection of it.

The only serious objection against the common origin of the Egyptians and the Semites is their physical difference. But we must notice that very few have as yet denied the unity of the Aryan race, though we find, from the Ganges to the Western

coasts of Europe, Aryans of all shades of colour of skin and hair, and of all physical types. The influences of climate, food, life and intermixture with other races are too powerful in their effects to allow of our safely taking physical type for our only guide in ethnological researches.

We have evidence of this in Egypt itself. As Champollion has noticed, the Copts, who have preserved the last remnants of the old Egyptian tongue, are far from representing the Egyptian type illustrated by the monuments and the mummies; this type has, on the contrary, been retained by the Arabic-speaking Fellahs. The Egyptians lived for many centuries on the banks of the Nile before they wrote their first records. It is in this long period, when they were constantly struggling with nature to master the annual flood of the fertilizing river, and with the hostile tribes of the desert and of Nubia, that the Egyptians acquired an individuality so strongly marked that they constituted a race. If, however, we compare an old Egyptian of the first dynasties with a Semite, an Arab, for example, we can account for the difference in type by intermarriage with the negroes. Mr. Poole said long ago that the Egyptian was an intermediate type between the Semite and the negro. We must, besides, remember that probably the Proto-semites severed themselves from the Hamites before the time when the Egyptians had acquired their marked personality, and that the Semites, after having passed into Asia, came into contact with other races whose influence contributed to exaggerate the difference of the two branches of the same family.

Among the races which the Semites encountered, the one which exercised the most powerful influence is the Turanian, represented in the Assyrian and Babylonian records by the Akkadians. Those people belonged to the ethnological group called Ougro-Altaic. Their grammar, their syntax, in fact all their conceptions, were entirely different and sometimes opposed to those of the Semites. As we know now from the Cuneiform records, those Akkadians were the first civilisers of Mesopotamia: all the poems and legends, which were borrowed by the Babylonians and afterwards by the Jews, were first written in Akkadian. The Turanians seem once to have covered all Western Asia, and their influence was everywhere strongly felt. The tradition of this powerful Turanian reign has been handed down by the classical writers who call the Turanians by the very loose term of Scythians.

It now seems clear to me that the proto-Semites once dwelt with their Hamitic brothers in Africa, passed in prehistoric time into Asia through the Isthmus of Suez, and settled first in

ago, especially Diodorus (*see* "Maspero, Hist. Anc." 13). Brugsch shows conclusively that the monuments commence chronologically at the apex of the delta, "and the more you ascend the Nile the more does the stamp of antiquity vanish" and that they always exhibit *only* negro races to the south of Egypt. The only ground Mr. Bertin seems to have for his theory of the common origin of the Semites and Egyptians is the presence of Semitic words in Egyptian. But in order for this argument to be valid, he must first prove that these Semitic words formed part of the original stock of the Egyptian tongue, and this is impossible, for we have the evidence of Egypt herself against it, clearly showing it was not until the "middle empire" that this cross fertilisation of words took place, and they were ingrafted to (instead of forming a part of) the stock of words.

One (the speaker believed of the Sallier) papyri is a letter of advice from an Egyptian scribe to a young man to abandon his use of Semitic words and the habit of giving to Egyptian words a Semitic form; for it appears this was a fashionable habit with "young Egypt" thus showing conclusively that such words were considered by a conservative Egyptian to be utterly alien to his mother tongue. Mr. Bertin's theory is contradicted in another way. The researches of Dr. Hommel, Guidi and Lenormant ("*Sur l'antiquité de l'âne et du cheval*") show that the Semites were from the first acquainted with the horse and camel and probably the sheep and common hen, but we know that the Egyptians were not acquainted with these until after the time of the Hyksos. This, had Egypt been the route of the Semites, could not be the case. Professor Owen ("Journ. Anthrop. Inst.," Vol. IV) shows decisively that a Semitic origin of the Egyptians rests on no basis whatever; that their features had no Semite elements till after the Hyksos invasion and consequent mingling of types; that the original seats of the empire were not fixed near Ethiopia, nor east of the delta, where they would have been if they were Semites coming either from Ethiopia (with Mr. Bertin) or from Asia (Maspero) but in the centre of the country at Abydos, Memphis and Thebes. Mr. Bertin ably indicated Semite physical characteristics, thus refuting himself, for in the most ancient portrait statues at Boolak these peculiarities are conspicuous by their *absence*. And it is not until after the Shepherd kings, in the Ramessid period, that a type of Semitic features appears. Professor Owen says—"Facts are adverse either to an Asiatic immigration by the isthmus or an Ethiopic one, and at least in reference to a possible antecedent immigration they leave the equal searcher after truth in an expectant attitude and beget a determination to persevere in researches indispensable for the fulfilment of his quest."

That any people would leave the fertile Nile valley to settle in the adjacent parts of Asia seems most improbable and directly contrary to subsequent history, for we know the great trouble of the Egyptians was the persistence with which Semitic tribes attempted to obtain a home in the valley or the delta.

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Mr. T. G. PINCHES observed that he did not think it could be said with certainty that Akkadian was a Turanian tongue, as our knowledge of it was as yet very incomplete. He did not deny, however, that there were many analogies. As the knowledge of the original home of a people might be of value in deciding the true nature and relationship of their language, it would, perhaps, be of interest to mention a discovery that he had made lately, bearing upon the origin of the Akkadians. In two little report tablets found last year by Mr. Rassam, at Konyunjik, there occurs several times the name of a people called the *Kusâa*, which Mr. Pinches at once connected with the name Kusua, found on a little tablet from Cappadocia, supposing it to be the old name of that country. This conjecture was confirmed by the fact that in a list, published in the "Cuneiform Inscriptions of Western Asia" (Vol. ii, Pl. 53, No. 1), giving the names of the countries in the neighbourhood of the Taurus range of mountains, the word Kûsu occurs. Now as the name of the Ethiopian Cush was spelled in the same way in Assyrian, it was, of course, regarded by most people as the same place. The Kusâa, however, were certainly a northern people, and their name was quite regularly derived from Kûsu by the change of the *u* ending into *âa*. The identity of the Kusâa with the old native name of the country Kusua and the Assyrian name Kûsu might therefore be regarded as certain. Light was thus shed on two important passages in the Book of Genesis, the first of which occurs in chap. ii, ver. 3, where the river Gihon, there said to encompass "the whole land of Cush," was mentioned; and the other in chap. x, ver. 8, where it was recorded that Cush begat Nimrod. The identification of the name Cush in these two passages with Cappadocia instead of Ethiopia cleared away many difficulties in the Biblical narrative. Not only was the question as to the position of

hitherto unexplained word *atew* or *tew*, read also *atef* and *tef* (father), which became in Coptic ⲧⲁϥ: the Egyptian *w* is a personal pronoun masculine, in ; we have therefore *generator-he, i.e.*, father. The Copts, who had no doubt retained the meaning of the primitive formation have reversed the terms and said *he-generator*. The root appears with the same uses in the Semitic tongues, it forms the *t* conjugation which has a reflective or passive sense; we have the demonstrative pronoun אתי.

The Shaphel, which exists in Assyrian, Syriac, Arabic, &c., is also explained by the Egyptian, where the formation of this voice is still clearer. The suffix *su* of the third person localised in the feminine in Egyptian is often determined by the *t*, probably to leave no doubt on the mind of the reader; in Assyrian the suffix is retained for both genders, m. *su*, f. *si*. We have the word *su* (man) in Egyptian (the Hebrew יאש), and prefixing the word the factitive or causative voice, Shaphel.

In Egyptian, as in the Semitic tongues, we have the genitive of position, and in the former there are many traces of broken plurals. Besides that Mr. Le Page Renouf has shown that the Egyptian plural often conveys to the mind not an idea of plurality but one of collectiveness, which is the case with the broken plurals.

I think I shall be able to show why, in the first Semitic group (Arabic), the syntax and most of the grammar remained intact, why, in the second (Syrian), the grammar and syntax have been disturbed, and why, in the third (Assyrian), both have been partly lost.

As I have said before, the object of this paper is not to look for the primitive home of mankind, but only of the Semites. As I accept, however, the common origin of the Semites and Hamites, I must notice that no Egyptian tradition, either on the monuments or on papyri, or preserved by classic writers, ever points to Asia as their first country; on the contrary, as Dr. Birch has noticed, all traditions point to the south of the Nile valley. Modern philologists, as Mariette, Dr. Lepsius, Dr. Latham, &c., seem to have accepted this view. If the race had an Asian origin, the Egyptian, as the oldest and earliest civilised people of the family, would have retained some recollection of it.

The only serious objection against the common origin of the Egyptians and the Semites is their physical difference. But we must notice that very few have as yet denied the unity of the Aryan race, though we find, from the Ganges to the Western

coasts of Europe, Aryans of all shades of colour of skin and hair, and of all physical types. The influences of climate, food, life and intermixture with other races are too powerful in their effects to allow of our safely taking physical type for our only guide in ethnological researches.

We have evidence of this in Egypt itself. As Champollion has noticed, the Copts, who have preserved the last remnants of the old Egyptian tongue, are far from representing the Egyptian type illustrated by the monuments and the mummies; this type has, on the contrary, been retained by the Arabic-speaking Fellahs. The Egyptians lived for many centuries on the banks of the Nile before they wrote their first records. It is in this long period, when they were constantly struggling with nature to master the annual flood of the fertilizing river, and with the hostile tribes of the desert and of Nubia, that the Egyptians acquired an individuality so strongly marked that they constituted a race. If, however, we compare an old Egyptian of the first dynasties with a Semite, an Arab, for example, we can account for the difference in type by intermarriage with the negroes. Mr. Poole said long ago that the Egyptian was an intermediate type between the Semite and the negro. We must, besides, remember that probably the Proto-semites severed themselves from the Hamites before the time when the Egyptians had acquired their marked personality, and that the Semites, after having passed into Asia, came into contact with other races whose influence contributed to exaggerate the difference of the two branches of the same family.

Among the races which the Semites encountered, the one which exercised the most powerful influence is the Turanian, represented in the Assyrian and Babylonian records by the Akkadians. Those people belonged to the ethnological group called Ougro-Altaic. Their grammar, their syntax, in fact all their conceptions, were entirely different and sometimes opposed to those of the Semites. As we know now from the Cuneiform records, those Akkadians were the first civilisers of Mesopotamia: all the poems and legends, which were borrowed by the Babylonians and afterwards by the Jews, were first written in Akkadian. The Turanians seem once to have covered all Western Asia, and their influence was everywhere strongly felt. The tradition of this powerful Turanian reign has been handed down by the classical writers who call the Turanians by the very loose term of Scythians.

It now seems clear to me that the proto-Semites once dwelt with their Hamitic brothers in Africa, passed in prehistoric time into Asia through the Isthmus of Suez, and settled first in

Arabia Petræa. There living a pastoral life, they acquired their personal characteristics and developed their half-shaped grammar. For them the verb was a noun, as in Egyptian; by the same process they slowly worked out an elaborate system of conjugations, and voices by means of prefixed letters, so-called "serviles;" and by means of suffixed letters, they arrived, as M. Ancessi has proved, at triliterality. This triliterism has been carried to such an extent that the biliteral roots (the so-called concave verbs) are forced into the same symmetrical system, and in many cases the biliteral roots have been made triliteral by doubling one of the radicals. Another process employed has been to treat two distinct roots as one; and in the fusion, one is reduced to a single letter. The tenses of the verb were still vague, as is shown by the fact that what is the form of the present in one dialect is the past in the other; but the suffixes of persons and the prefixes of voices were still clear to the mind of the Semites of that period, as is shown by the fact that they are used for different purposes by different tribes.

The numbers in the nouns were the same as in Egyptian, and the plural a mere collectiveness; hence the broken plural, which in fact is not a plural but a collective word, as shown by the Arabic, where these plurals govern the verb in the singular. We have some examples of this conception in Hebrew and Syriac. For the same reason the collectiveness of the plural implies often the feminine, as is the case in Arabic.

In their dispersion the three great branches of the Semitic family carried these elements with them and were not likely to modify them save under very strong foreign pressure. Therefore we must expect to find the greatest modifications in those dialects which have been most exposed to foreign influence.

The first branch, the Arabs, found in Arabia neither Turanian nor Aryan but only perhaps Hamitic tribes in certain districts; their grammar then could only have been influenced in the Hamitic sense, and for this reason the Arabic seems to be, if not the purest Semitic dialect, at least the one where the principles of synthesis have been carried to their logical ends. There are a few evidences of Turanian influence, but that influence is very feeble, as is the case when it is not by conquest but by intercourse.

The Hebrew and Aramæan, having felt the foreign influence more strongly and having perhaps remained less connected with the common source of the family, have suffered to a much greater extent. The verb, no doubt, is still the same, but it has lost a great deal of its flexibility; the primitive roots have no longer the same life. The conception of the plural is in great part lost.

The Assyrians and the Babylonians, being by their position and their civilisation under the direct influence of the Turanians, have, as rarely happens, reversed the order of their sentences, putting the verb at the end, as in Akkadian. They have entirely lost the tense formed with suffixes. The broken plurals have ceased to be regularly formed, and those found are treated as independent words. Even triliterality has not the same rigidity as in the other dialects.

For the same reasons of geographical position and foreign intercourse, the Akkadian legends, accepted as a whole by the Babylonians and Assyrians, have been also adopted with few changes by the Hebrews, Phœnicians, and Aramæan tribes, but have not penetrated among the Arabs.

Our theory is also confirmed by the physical differences of the three groups. If we examine the Babylonian and Assyrian monuments we see that, when as yet the Turanian element had not disappeared, the figures which are represented bear a strong stamp of Turanism, and prove the presence of Turanian blood in the Mesopotamian Semites; while the nearer we come down towards the pure Semitic period of the second Assyrian empire, the more are the figures Semiticised.

As Professor Sayce and Professor Schrader have noticed, the Arabs have kept the purest Semitic type. The travels of Palgrave give us the explanation of this fact. If we glance at his map, we see that Central Arabia is surrounded by seas of sand, and affords an inaccessible refuge to its tribes. It has, in fact, been a kind of island in the desert, where the Arabs have held out against all invaders, as the Caucasian and the Basque tribes did in their mountains. As Palgrave has noticed, the population of Central Arabia speak the Coran Arabic, a fact which shows how, in keeping aloof from all foreign influence in their refuge, they have developed to the uttermost the principles of their grammar.

Discussion.

Mr. J. Offord remarked that, although he had listened with great pleasure to Mr. Bertin's ably put forth theory of the African origin of the Semites, yet he felt it had so little foundation in fact that he should like to give a few reasons for doubting its accuracy. First, he thought that to assert the Egyptians were Semites was a statement for which there was no warranty whatever, and to imagine they descended the Nile from Ethiopia and entered Asia by the Isthmus of Suez was to ignore all evidence we have upon the subject. If there is one thing in which eminent Egyptologists, who differ widely on other matters, are agreed, it is that the Egyptians did *not* descend from Ethiopia bringing their civilisation with them. This guess had been hazarded by classic authors long

ago, especially Diodorus (*see* "Maspero, Hist. Anc." 13). Brugsch shows conclusively that the monuments commence chronologically at the apex of the delta, "and the more you ascend the Nile the more does the stamp of antiquity vanish" and that they always exhibit *only* negro races to the south of Egypt. The only ground Mr. Bertin seems to have for his theory of the common origin of the Semites and Egyptians is the presence of Semitic words in Egyptian. But in order for this argument to be valid, he must first prove that these Semitic words formed part of the original stock of the Egyptian tongue, and this is impossible, for we have the evidence of Egypt herself against it, clearly showing it was not until the "middle empire" that this cross fertilisation of words took place, and they were ingrafted to (instead of forming a part of) the stock of words.

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Paradise affected thereby, but we got also the fact that Cush, the father of Nimrod, a chief of what we now call the Akkadian race, lived in or near Cappadocia.[1]

A most interesting thing also was the double name-system revealed by the Cuneiform inscriptions: the Muṣri of the land to the north of Assyria, the Muṣur in Egypt, the Cush Cappadocia and the Cush Ethiopia, the Makan and Meluḫḫa in Babylonia, and the districts bearing the same names in Egypt. All these showed a connection in the minds of the people of the ancient world, between Egypt on one hand, and Mesopotamia and Asia Minor on the other, the weight of which, in considering the important paper which Mr. Bertin had just read, it was needless to point out.

Mr. Bertin said that he wished to add a few words in answer to the criticisms of Mr. Offord, though every one of them had been met and refuted in the course of the paper. Firstly, the author never said that the Egyptians were Semites, nor that the Semites were African, but only that Egyptians and Semites are "descended" from the same ancestors, and that the proto-Semites parted from their brethren when in Egypt. He would not follow Mr. Offord into the question of the origin of the Egyptians (which was outside the subject), but he would mention that Egyptologists are far from agreeing (as Mr. Offord wrongly supposes) about it. To cite only one example; one of our best Egyptologists and, what is rare among them, an eminent archæologist also, Dr. S. Birch, said (First Congress of Orientalists, Paris), that *no evidence whatever* supported the hypothesis of the emigration of the Egyptians from Asia. Moreover, all the classic traditions and the national Egyptian mythology point to Ethiopia as their first home, *the only* tradition to the contrary being the Mosaic statement. In his philological comparison, he had been careful to take Egyptian words from inscriptions of the fourth and sixth dynasties—that is, more than ten centuries before the Hyksos,—and the papyrus quoted by Mr. Offord is of a much later date. Supposing that the Egyptian civilisation began at the Delta (which the author denied) it would not prove that the Egyptians came from there. The quotation of Professor Owen, cited by Mr. Offord, proves that the learned naturalist thought he could not decide the question on account of the scant data then at his disposal.

He (Mr. Bertin) thought he had shown in his paper how inadequate are proofs obtained in comparing the names of animals, for deciding the origin of a nation. The horse was *not* known to the Semites at first, and was looked upon by the Babylonians as a foreign animal. If Mr. Offord would take the trouble to compare

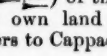
[1] Another confirmation of this is to be found in the characters used for the word "horse" (in Akkadian  *anšu-kur-ra*). This word has hitherto been translated "animal of the east," but the true rendering is undoubtedly "animal () of the country ()" showing that the Akkadians regarded their own land as the home of the horse, an honour given by the classical writers to Cappadocia.

Fig. 1.

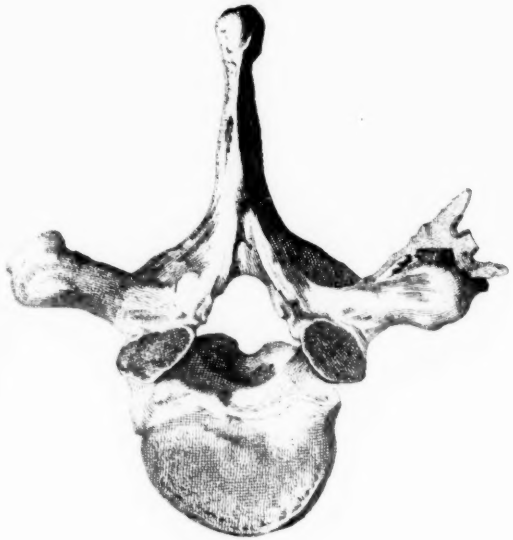


Fig. 2

J.P. Emslie del.

J.P. & W.R. Emslie, lith.

Journ. Anthropolog. Inst., Vol. XI. Pl. XXV.

HUMAN VERTEBRA WITH FLINT ARROW-HEAD, AND POTTERY
FROM TUMULUS NEAR COPIAPÓ, CHILE.

the most ancient statues exhibited in the Boolak Museum, he would see that their type is much nearer to the Semitic features, than to those of later dynasties, and he had satisfactorily (he thought) explained in his paper the reason of the difference of type of the Semites and Egyptians.

We do not know the causes which induced or forced the proto-Semites to leave the Nile valley, but the exodus of the Jews gives, in historical times, a parallel and certain fact: he therefore saw no improbability in the first emigration.

He pronounced in favour of the Turanism, not of the Akkadian tongue, but of the Akkadians. It would take too long, however, to treat now of this question.

As for the presumed site of the Garden of Eden, he had purposely withheld from speaking of it in his paper, as he looked upon the legend as entirely mythical.

Notes on some EXCAVATIONS *made in* TUMULI *near* COPIAPÓ, CHILI, *in June*, 1880. By J. H. MADGE, Esq.

[WITH PLATE XXXV*.]

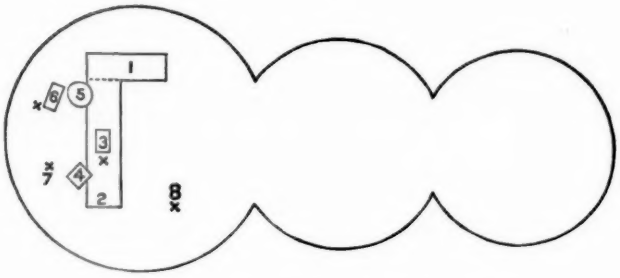
(A paper read before the Institute on June 14th, 1881.)

HEARING from my friends that pieces of old Indian pottery had on more than one occasion been washed out from the soil after heavy showers of rain, I obtained permission from Don Francisco Cortes, a large landed proprietor, to dig on any part of his estate, and a cordial invitation was given to stay at his house while the operations were going on. Further, Don Francisco pointed out a spot from whence had been obtained, at different times, some dozen or more pieces of fine pottery, in a very perfect state. These he described as "cups," "saucers," &c., with patterns painted on them. Unfortunately so little interest was then taken in the matter, that all these specimens were given away piecemeal, or had somehow disappeared. Don Francisco now so far interested himself as to hunt up all the places where any remains had been found. The principal one had been levelled for cultivation and all traces were thus destroyed; we saw nothing but a large number of broken fragments scattered over the surface of a large field. Next we visited a rocky, stony *quebrada* (a narrow valley), where were remains of stone houses. These would appear to have been constructed by the Spaniards, as there were small clay heaps and traces of small furnaces in the neighbourhood. Finally we found an untouched piece of ground, forming a kind of large island, which had escaped cultivation by the lucky circumstance of its being so much above the general level that it could

FROM TUMULUS NEAR COPIAPO, CHILE.

not easily be irrigated. This plot was in the centre of the valley through which runs the Copiapó river, on the Cerillos farm, and about twelve miles above Copiapó. This was a spot where the most perfect specimens had been obtained, and here we commenced operations. Beginning at the edge of a break in the ground, one piece being about 4 feet higher than the other, where the surface water in running off had hollowed out the softer portions, with an hour's work we came to two adult skeletons in a very decomposed state. The hole had all sides (except the top and front) very straight and perfectly defined, cut in a hard gritty alluvial soil; it was rectangular in shape, the dimensions being, as far as my memory goes, 2 feet 2 inches by 1 foot 10 inches wide by 1 foot 6 inches thick; that is, with just sufficient room for the bodies. The bottom was of a coarser river grit, unconsolidated, and therefore unlike the soil above, which was almost hardened into sandstone. Before interment it would appear that "tortora" grass (a kind of rush) had been placed at the bottom and back; the bodies and pottery were next put in and the burial completed by a roofing of branches of trees and "tortora" covered with earth. The roof had long since fallen in, filling the whole space: the bodies were side by side in a sitting posture, with the knees pressed tightly under the chin. The heads had fallen off previously to the roof coming in, and were found wedged in alongside the bodies. Here were got a yellow soapstone pendant, for earring or necklace; a boiling pot of shoe shape, and a saucer with handle of painted pottery, the last named being the most regular in shape and colouring of all now dug out, and its glaze being very marked. Unfortunately the saucer was stolen by a stranger. The crockery was found at the feet of the human remains.

After several unsuccessful trials round the same spot, work was commenced at a new place, about 150 yards above in the valley and on the same high level piece of ground. Here we had already noticed evident remains of artificial work, there being some eight or ten domes of very smooth and regularly rounded appearance, the general level being formed of similar soil, and the whole surrounded with scattered trees. The largest dome, about 40 feet in diameter, was selected; it was situated some 200 yards north of the railway, and was, as shown in the accompanying figure, connected with two similar but smaller tumuli.



PLAN OF TUMULI EXCAVATED NEAR COPIAPÓ.
(The crosses indicate the positions of the heads of the bodies.)

The work was commenced by a mistake of the peones at the spot marked No. 1 on this figure. First they cut through about a foot of very fine alluvial soil, which appeared to have been worked up like mortar, laid on wet, and then beaten in hard. This was so dense that the very few showers of rain which fall in this part of Chili would hardly penetrate it. This passed, a course of "adobes" (hard sun-dried mud bricks) 9 inches or 10 inches thick, was found, the interstices being filled with dry earth. Under this was a layer of 2 inches to 5 inches of "tortora" grass, again another layer of dry earth, followed by a second course of "adobes" having in places more "tortora" and a few branches of trees, partly above and partly below the second line of "adobes." The whole formed a very varying thickness, of an average of some 3 feet. The dome shape, which on the surface had rather more than a foot rise in the 40 feet, was not nearly so regularly preserved in the two courses of "adobes;" especially in the lower one, where there were hollows in places, quite a foot deep. This passed, a hard alluvial grit, with boulders and pebbles, was met with, and it continued down to a depth of more than 8 feet without any change. From this a cross-cut No. 2 in the figure was made to pass alongside a spot No. 4, where a depression showed the surface had given way. At first similar ground was met, but on continuing there was a change to a very fine soil, like that found on the surface, with the only difference that it had below been filled in dry. As soon as this new ground was encountered, sinking again commenced, and after passing a thin layer of ashes, we came, at a depth of about 12 or more feet, to a similar and most probably the same river grit met at the bottom of the first find. Simultaneously with this we struck on another rectangular opening, marked No. 3 in the figure, a little smaller than the first and containing the skeleton of the

Indian whose skull and femur were exhibited when this paper was read. As before, the body was interred in a compact sitting posture, and the head had dropped off. As the roof, of branches, &c., was almost intact, a good view was obtained of the body, which was resting on a small quantity of "tortora," placed on the free grit. Hardly a bone had been displaced. Accompanying the remains, at this spot was found a large shoe-shaped vessel in pottery, with a coating of soot still on it. Following the soft run of the ground, we found on the same bottom level at No. 5 in the woodcut a large urn with two handles at the lower part, and painted black, white, and red, and a painted basin of red clay. The urn was entire but badly cracked, the earth having fallen in and crushed it. In getting it out it fell to pieces, but all the fragments were carefully collected. The largest fragment is represented in fig. 2, Plate XXXV*. These pieces of pottery, as indeed all found, were either empty or with earth only in them.

The depression of the ground was over No. 4, where we found a similar rectangular cavity containing an adult skeleton. Here the body was interred at only two-thirds the depth of No. 3, and contained a duplicate of the red-painted basin. Ashes bespeaking a burial ceremony, in which fire had been used, were still met here, and occurred near all the human remains subsequently disinterred, always above, and generally right over the graves. It had also been noticed before that interments were made without regard to the points of the compass, the faces being turned in any direction as convenience would suggest. Alongside No. 4, and at a similar depth, were found scattered remains of two dogs and a pig.

Next, at the spot marked No. 7 in the woodcut, we found a skeleton, buried in a reclined posture, with the knees bent as if the body had lain on the ground until the joints had stiffened. There was a large quantity of "tortora" grass completely surrounding it, but there were no traces of dress. On the bones were *signs of eight arrow wounds.* The right side of the skull has two, one striking in front cutting away the side of the upper jaw and displacing several teeth, after which the same arrow continuing its course penetrated the lower part of the skull and reached the brain. The jaw and first vertebra come next, with wounds, still from the right side, cutting and splitting the bones, and caused by two distinct projectiles. One of the vertebræ and corresponding left rib have marks in three distinct places caused by one arrow, which striking the rib took out a splinter of bone, and again passing through the same rib, where connected with the back, it penetrated the vertebra, *where the flint arrow head still remains*

imbedded in the bone, as represented in fig. 1, Plate XXXV*. Another rib shows a wound of a spent arrow, *the point of which still remains in the bone.* Several facts would appear to show that this skeleton is that of one of the Spaniards, probably interred about the year 1540. The foremost reason is based upon its great size and massiveness. The skeleton in No. 7 was the only one discovered in a reclining position, all the others being in an upright sitting posture, with the knees drawn up under the chin. Again we may note the very much better state of preservation of the skeleton than of No. 3, the second best skeleton found, although the former was exposed on the surface and covered only by some 18 inches of earth, without the protection of the "adobes," &c. It was the sole instance in which the remains of the insects that preyed on the body were found. The skull and the "tortora" round the other bones were nearly filled with the reddish sheathing of small beetles. Lastly, the numerous wounds, the abundance of "tortora" grass, and the absence of the roofing of branches, that, with one exception, was invariably found, are facts which support my view. The skeleton in No. 3, which from its depth and position was *most likely* the first interred in this tumulus, would probably be longer preserved than the others from two circumstances, viz., its depth, and because it was the only one found resting on the grit bottom, which would freely allow any moisture to pass off, while still at some appreciable distance above the present bed of the river, and the average level of the valley.

The interment, No. 6 in the woodcut, opened simultaneously with the preceding one No. 7, furnished the most interesting discovery made, and was the exception just referred to with regard to the roofing. The bottom of the grave was rather over 7 feet below the surface. The sides and top were all of large flat unworked stones, nicely fitted together and cemented with hard mud. The top stones had, if I remember rightly, a considerable slope *both* ways, and overlapping the sides, would with the cementing have rendered it quite watertight. The body, that of a child, had been placed at one end across the grave, and on its left was a large space wherein were found a number of relics. These included a small shoe-shaped vessel in pottery, a basket of vegetable material about 10½ inches in diameter, the latter containing small pieces of drapery and a wooden needle. There were also two round thin gourds 3½ inches in diameter with circular holes nearly 1½ inches in the top. One gourd was plain, the other had a pattern cut on it: both, with the pot, were empty, but the gourds only were found in the basket. There were alongside several small pieces of bone &c., probably toys, and an instrument of similar

wood to the needle, whose use could not be guessed. It was circular in section, with round, half pointed, ends of equal size throughout, and was about 10 inches long by $\frac{5}{16}$ of an inch in diameter: near one end was a flat curved piece of soft white wood, slipped over it, which was badly decayed.

Only two bodies had any hair remaining, although this was carefully looked for. One was the supposed Spaniard No. 7, the other was the child just mentioned.

At No. 8 in the woodcut there was another depression in the ground, and on sinking, at a slight depth, was found another adult. The roofing of large branches of trees had fallen in. The skull was found with an old fracture, and one of the ribs were split. Alongside the latter was a large black stone spear-head. Near were found a pestle and mortar, the former of fine conglomerate about 15 inches long. The mortar was made of the trunk of a tree, over 3 feet long, with an opening at one end running more than half way down. The outside was much decayed, but the lower part inside still had the hard polish given to it by use. Another fragment of a skeleton of a pig was here found, as well as a large flat hollow stone, with the stone pounder which had evidently been used for crushing grain. Of the latter type of implement several examples were got out at different times.

Of the surrounding tumuli, more than one was opened, where we saw hollows in the ground, but nothing of interest was found in them.

The next excavations were at La Puerta, near Los Loros, about 45 miles above Copiapó, in the same valley. Here in a cluster were some thirty tumuli which had escaped demolition. They were situated on the north side of the valley close under some high hills. This district was the most densely populated by the Atacamenian Indians, as proved by history and the numerous tumuli, batches of which are to be found in large numbers in all the little valleys branching off from the main one, though for the most part in very rough stony ground.

At La Puerta, some six or seven years ago, a German professor commenced exploration but with little success, as from what one of the peones who assisted in the work asserted, the digging only went down a little under the upper courses of "adobes." All they appear to have found were a half moon of copper, a bone needle about 6 inches long with a pattern cut on it, some small beads being part of a necklace, and some fragments of crockery. No bones were met with, and a skull brought to Germany was said to have been purchased of some Chilians at Los Loros. In consequence of the above information digging was carried on in the already

partly-worked tumuli, and in each case, on going deep enough, human bones were met with, but in a bad state of decay; otherwise the results were very meagre. A few pieces of the stone necklace above mentioned, a number of fragments of pottery, one being a portion of a large circular coarse vessel, together with some small pieces of fine polished black ware, one or two of the latter having patterns incised with a sharp instrument. There were, further, a piece of a whale's bone, some roughly worked stones, and several pieces of mussel shell with the ends ground square (which appeared to have been used as spoons), and one of the weights of a "bola," viz., the stone with the raw hide casing. The "bola" is an instrument still used in South America. It is generally made with three round stones, cased in raw hide, with hide cords attached, the loose ends of which are fastened together in the centre. When thrown, one stone is held in the hand while the others are swung round the head, and on releasing the bola, the three weights separate in the air and twine the cords tightly round any object they may strike. About half a mile above where we had dug, on the other side of the valley, are the remains of a large Spanish fort, and on going to visit it, some fields were crossed which were completely covered with small fragments of differently coloured Indian pottery.

One of the stone tumuli was also partly opened up. After removing a pile of stones from the top, coarse earth was reached, at about the level of the surface of the ground. Close under this was a layer of stones, in place of the "adobes;" below we came upon boulders and hard ground, making the excavation so difficult that we were glad to abandon it.

It may interest the Institute to hear that a spot where arrow and spear-heads had been manufactured, was found by one of my brothers a few years ago, in a small oasis in the middle of the desert, about 50 miles to the south of Copiapó. After some search quite a collection was made of heads of similar form to those dug up at Cerillos, and in different states of manufacture, from the completely formed, down to the rough chippings.

Explanation of Plate XXXV.*

Fig. 1. Human Vertebra (second dorsal) with flint arrow embedded in the bone; found in a tumulus near Copiapó, at the spot marked No. 7 in the plan on p. 439, natural size.

Fig. 2. Fragment of a large two-handled urn in painted pottery, showing style of ornamentation; found in a tumulus near Copiapó at the spot marked No. 5 in the woodcut plan.

On some Stone Implements *from* British Guiana.

By E. F. Im Thurn, Esq.

[With Plate XXXVI*.]

(A Paper read before the Institute on June 14th, 1881.)

In putting together a few notes on certain stone implements from British Guiana, the first point to which I shall refer is that of the sources from which these were derived. Such implements are no longer to be found in use by the Indians, except in an unimportant way which will presently be described, but they occur under three different conditions; (1) they are found buried in certain shell-mounds or kitchen-middens; (2) they are sometimes found scattered, as are natural stones, on the surface of the ground; (3) and lastly, they are occasionally met with stored and carefully preserved in the houses of the modern Indians. Purely as a matter of convenience, and not because of any distinguishable difference in form between the examples of the three classes, I shall class the implements according to their mode of occurrence.

The shell mounds I have described in detail elsewhere; here there is only room for a rough sketch of their nature and position. They consist of large heaps of shells of edible molluscs, of bones, and of other refuse of human food; and it is amongst this refuse that many stone axe-blades and other implements occur. If it were possible to determine who the makers of these mounds were, this would determine also the question as to the original possessors of stone implements of this class. The mounds occur, without exception, in the low swampy tract of country which lies along the most western part of the coast of Guiana, toward the Orinoco; they are, therefore, in the district of Guiana nearest to the West Indian Islands. Though the evidence for the fact is far from complete, there is, I think, strong reason to believe that these mounds were made by certain Caribs from the islands during the short visits to the mainland which these Indians are known habitually to have paid just before they finally settled in Guiana. If this hypothesis is correct, it might *à priori* be supposed that the implements occurring in the mounds would be identical in form with those of Carib origin from the islands. This to any one comparing the implements which have reached Europe from the mainland and from the islands does not appear to be quite the case. The difference between the stone implements from the shell mounds of Guiana and

the generality of those believed to be of Carib origin in museums is that the latter are far more elaborately finished, and of far more ornamental shape than the former. The explanation which has occurred to me of this difference throws, I think, some light on large numbers of the Carib implements stored in European museums.

If, as many things seem to indicate, the habits of Indians have been the same for centuries, within each tribe, as, where not affected by European influence, they are at the present time, it is reasonable to look to modern habits for explanation of older habits now no longer in themselves evident. Now, from my own experience among the various Indians of this part of South America, I know that in their many leisure hours these people often fashion highly ornamental implements and weapons, which they never actually use, except perhaps ceremonially, but keep them proudly at home, while they take to the fields with them implements the production of which has cost less labour. Accordingly, if the old Caribs shared this habit, it is evident that on these short predatory raids from the islands to the mainland these Indians would have taken with them only their less elaborate implements, and that these only would have been found in the mounds. The habit, both as concerning modern Indians and the mound-makers, whoever these were, may be made plainer by another illustration. At the present time Indians, though when at home they almost invariably boil their meat in vessels of clay and keep their supply of water in bottles of clay, yet when travelling, when these travels are not for the purpose of permanently occupying a new settlement, very seldom carry any pottery with them, but make shift by either roasting their meat in small pieces fastened into cleft sticks, or smoking it, and by carrying water, on the rare occasions when, owing to their travelling away from rivers, this is necessary, in vessels formed of hollowed fruits, these being less laboriously produced, and less fragile than clay vessels. This carefulness of their pottery is closely analogous to the care which they take of their weapons of the better sort. It may be as well to add that in the shell mounds, though these necessarily represent an immense amount of consumed animal food, fragments of pottery are of such very rare occurrence that I have met with them only in a single instance.

If it is objected that there is a weak point in this theory of the Carib origin of the shell mounds and, consequently, of the implements occurring in those mounds, in that I have but asserted, without giving proof, that the mounds were made by island Caribs, I answer, first, that the evidence for the fact is too long to be inserted here; and secondly, that there is less need

of this evidence here, in that, whether Caribs made the mounds or not, it is at least indisputable that there are Caribs from the islands in Guiana, and having had considerable experience of stone implements from various sources in Guiana, I am convinced that none from any source in that country are as elaborate as many, or, indeed, as most of those from the islands. It is, therefore, safe to assume that the Caribs in passing to the mainland did not carry with them their most elaborate weapons.

Finally, as regards this subject, as it is reasonable to suppose that the Caribs who remained in the islands must have retained their share of weapons of the simpler sort, it would be interesting to know something of the numerical proportion which the more elaborate Carib implements from the islands bear to the simpler forms which ought to occur in the same places. Never having paid special attention to the matter, I am under the impression that in museums the former are much more numerous in proportion to the latter than is natural; but this is probably due to the fact that the more elaborate and ornamental forms would naturally be more diligently collected by these modern finders than the simpler forms.

The implements which are found in Guiana, scattered like natural stones on the surface of the ground, occur somewhat rarely, and generally singly, throughout the colony. I have received them from, or found them in, almost every district except the easternmost in the neighbourhood of the Corentyn river, which district is at the present time almost uninhabited by any Indians except such as have been brought there by missions. But just because they are thus sparingly but widely distributed, it is especially noteworthy that, as I have reason to believe, they are to be found collected in considerable numbers in at least one small district. This is at a place called by Indians Toocano, on the Brazilian side of the Takutu river. In passing down that stream, the Indians who were with me asserted that the stones of which I was in search occurred in abundance at that place; and, though various circumstances prevented me from personally investigating the matter, I believe that the statement was true enough, for the offer of a reward for each stone implement resulted in that neighbourhood in the bringing of ten or twelve in a single day, whereas in other places I thought myself fortunate if I got one from the Indians in a fortnight. A probable explanation of this accumulation of stone implements is that at Toocano was once a manufactory of such things; and if so, some light may be thrown on the fact by comparing it with the following modern Indian habit. As I have pointed out elsewhere, of the various Indian tribes in Guiana each does

not make all things that it requires, but each has a special object of manufacture, as, for example, cassava-graters, balls of cotton, hammocks, canoes, pottery, or blow-pipes, and each exchange some of the objects which it thus manufactures for whatever it requires of the things made by other tribes. It therefore seems not unlikely that the manufacture of stone implements, employing great skill, was confined to special tribes, or even, as is the case with the far-famed ourali-poison, to special families, one of which may have had its home at Toocano. In this connection, readers of Hiawatha will probably remember to compare the "arrow-maker" who plays a part in the traditions of North American Indians.

The third set of stone implements, to which I now turn, is that of the examples to be found at the present time stored among the odds and ends in the possession of Indians. They are now never used for any purposes for which they can originally have been intended. I have, indeed, seen an arrow pointed with stone used, but as hardly more than toys. There are probably two reasons for the preservation of these implements now that their original use has disappeared. In the first place, stone axe-heads are now certainly valued chiefly by the pottery-makers as being the instruments best adapted for smoothing and polishing their newly moulded clay; though if one of these is not at hand any smooth pebble is used instead. In passing, I may here observe that the so called "charm-stones" from Guiana, of which there are two examples in the Christy collection, and which are sometimes said to be rough natural pebbles which, for purposes of divination, have been artifically worn into their present smooth shape merely by being long held in the human hand, are, I cannot help thinking, merely natural water-worn jasper pebbles, such as occur in large numbers in the beds of several of the small rivers of the interior of Guiana, which have been selected as being, because of their smoothness, particularly suitable as implements for polishing clay; such, at least, is the use to which they are now put, and such is the explanation of their origin given to me by Indians. To return, however, to the stone implements with which I am now more immediately concerned; in addition to their use as implements in pottery-making, some superstitious value seems to be attributed to them. They are sometimes to be found among the separately kept personal properties of the men; and when this is the case, they cannot be regarded as potters' implements, as pottery is made only by the women. Taken by itself this apparently meaningless hoarding of unused stone implements may not seem of much importance, but it gains significance from the fact that a considerable number of stone implements

thus stored are dignified by being more or less ornamented with colour, generally only a coating of the red pigment (faroah) used by the Indians for very various purposes, but sometimes, as in the case of one example from Guiana in the Christy collection, there is a somewhat elaborately painted pattern certainly of Indian workmanship. This example, though its history is not quite clear to me, was, I believe, procured from an Indian in the neighbourhood of the Wanamuri shell mound about the year 1866. At any rate, the habit of painting these implements seems to indicate that some special value, apart from any possible use, is attached to them.

Though these implements have thus been roughly classified according to their present mode of occurrence, it must not be supposed that any real distinction, in point either of form or of degree of finish, marks the three classes. At one time I thought that those from the shell mounds were less smoothly finished than those from elsewhere; but after seeing large numbers of examples from all sources I was obliged to conclude that no such distinction can be drawn. As regards the material of which all the implements are made, this is evidently somewhat various and generally one or other of the stones which crop out naturally in the country; but my geological knowledge is too slight to warrant my saying more on this point, except that I should be very grateful for any information from those more qualified to speak.

I turn now from the general subjects of stone implements in British Guiana to point to certain actual examples. Implements such as the one represented in fig. 1, Plate XXXVI*, are not only of a type common in many parts of the world, but also represent one of the two most ordinary forms in Guiana. Three of this type are exhibited to the Institute; one was picked up on the surface of the ground, one I found in the possession of an Indian man; and one is from a shell mound.

Two implements, one of which is represented in fig. 2, Plate XXXVI*, are examples which I think more interesting. They are somewhat similar to the last type, but differ in that the faces are flatter, more like those of the blade of a knife, and that the narrow ends, the ends by which they would naturally be attached to handles, are curiously fractured. Their chief interest lies in the fact that their exact use can, I think, be shown with considerable probability.

The chief weapons of war of the Indians are those clubs of heavy wood which are now very common in European Museums. These differ considerably in form according to the tribe by which they were made. The habit of inter-tribal war having now practically disappeared, though only within the

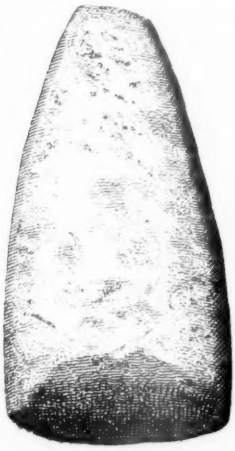


Fig. 1.

Fig. 4.

Fig. 6.

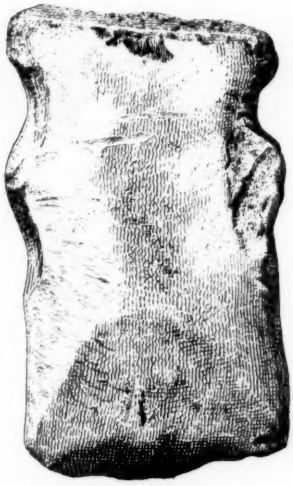


Fig. 5.

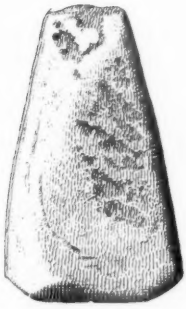


Fig. 2.

Fig. 3.

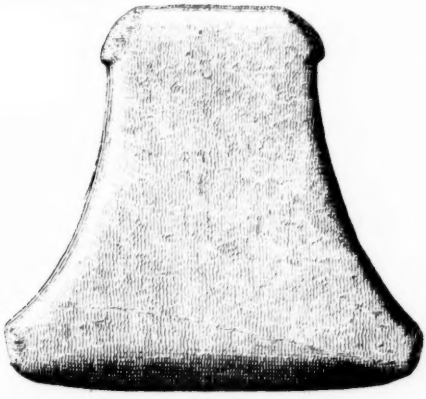


Fig. 7.

J. P. Emslie, del. J. P. & W. R. Emslie, lith.

STONE IMPLEMENTS FROM BRITISH GUIANA.

Half real size.

last forty years, such clubs are no longer made. The few that are still to be found in the possession of Indians are made entirely of wood. But there is an Indian tradition that they used to be made more formidable by the addition of a stone blade; and in the Christy collection there is a club of this sort with a small stone blade inserted in one side, as the blade of an axe in the handle. The blade of this Christy club resembles so very closely the two somewhat peculiar stone blades now under notice as to afford strong reason to suppose that they were identical in purpose; and this receives confirmation from the curious fractures at the narrow ends of my blades. The fracture is not only exactly such as would be made if a blade of this kind were broken off by a sudden shock from a club of heavy wood into which it had been inserted in the way I have suggested, but is also, on the one hand, exactly alike in both these examples, as well as in all other blades of the same character which have come under my notice; and is, on the other hand, of a kind which, as far as I am aware, is not exhibited in blades of any other shape.

There is another circumstance which, though in itself perhaps of no great significance, may be mentioned in connection with this suggestion. Having on one occasion asked some Indians in the neighbourhood of a shell mound—when, therefore, stone axe-blades were not very difficult to procure—to show me how they thought such implements ought to be fastened into handles, they illustrated their ideas by procuring examples and attaching them. The nature of the result is represented in this woodcut.

The handle of the axe thus produced is of light wood which would certainly split at the first blow, however slight; and the heavy blade is inserted in a way quite different from that in which stone blades are usually supposed to have been fastened into the handles. The whole implement appears, in fact, absurd. But closer attention shows that the result, allowance being made for the use of light, instead of heavy wood, and for the haste and want of serious purpose with which my example was made, is exactly such as, according to my suggestion, the war clubs were.

The facts just mentioned suggest another reflection. The reason of the abandonment of the use of stone implements generally was of course the acquisition of metal implements of European manufacture which better answered the same purposes. But though Europe supplied such articles as knives and axes, it did not supply war-clubs; and the Indian had to make the latter for himself, long after he had given up making

the former. It seems probable that the purpose for which Indians most recently worked stones was for these blades of war-clubs. That they eventually gave up even this survived practice, and adopted the fashion of making their clubs with the difference of the omission of the blade, was probably due to the fact that, all other stone implements having been supplanted by those of metal, the art of working in stone was so little practised that it was soon lost, and the Indians were no longer able to make even blades for their war-clubs.

Fig. 3, Plate XXXVI*, represents the commonest type of all in Guiana. The shape varies slightly, but the outline has been well compared to that of the section of a "button-mushroom," which has been cut in half from the apex of the cap down through the stem. Implements of this form, though they occur in all the three ways which have been described, are especially abundant in the shell-mounds; and from this circumstance, as well as from the fact that they can hardly have been very formidable weapons, it seems not unlikely that they were domestic implements such as would be used for pounding, and for cracking shells of molluscs and bones of animals. It is, however, noteworthy, and not readily explicable, that these implements have the groove on each side, dividing them into handle and blade, which is exhibited also in examples of many other forms from this part of South America.

Fig. 4, Plate XXXVI*, is a small, but beautifully-finished blade, in which grooves, such as are spoken of above, occur in a somewhat varied form. In this case they are just such as would be most favourable to lashing the stone on to one side of a stick. The grooves, or to use what is in this case a more expressive word, the nicks, are in fact very like those which the Indian still makes in the cross-beam of his house at the point at which he is about to lash it with flexible plant stems to the upright corner post. Yet even if we suppose it to have been thus lashed to a wooden handle, it is somewhat difficult to realise that such a tiny axe can have been of much practical use.

In fig. 5, Plate XXXVI*, we have again a grooved form, but with the difference that just below each groove there is a projecting shoulder, which probably had some definite use, but which certainly makes the implement approach more nearly than any other I know from Guiana to the elaborate stone implements of the island Caribs.

This being the last grooved implement which I shall have occasion to mention, I take the opportunity to say that I can find no satisfactory explanation of these grooves in the literature of the subject, and that I should be greatly obliged for any information on the point.

Fig. 6, Plate XXXVI*, represents a very peculiar example, much resembling in shape a human foot with the leg as far as the knee. The cutting edge is where the knee would be in a leg; and the sole of the foot is so hollowed as exactly to fit the thumb when the stone is grasped with one hand. There can be no doubt that this implement was never intended to be fitted to a handle, but was grasped in the hand; and thus held, it would answer the purpose of a chisel or small adze, and would be a formidable offensive weapon if its holder was at close quarters with an antagonist. Mr. Tylor has pointed out to me that some American Indians, I believe in British Columbia, have been seen to fight with stones thus grasped in the hand, and that this is done with so great agility and dexterity that the Indian armed only with a stone in his hand can prove formidable to an opponent armed with a revolver. My implement was possibly used in this way.

Fig. 7, Plate XXXVI*: This, the last example, is far the most peculiar. It so closely mimics the shape of an ordinary European hatchet blade that it is impossible to doubt that it is a copy in stone of such a metal blade; and it is so beautifully finished that it must have been made while the art of working stone was still thoroughly understood. It must, therefore, have been made after the arrival of Europeans in the country, but before the art of the stone-worker had degenerated. Its date is, therefore, probably to be attributed to the 17th century.

Finally, and in connection with this hatchet, it may not be uninteresting to point out the analogy between three different objects of Indian manufacture, all of which belong to one stage in the history of Indian development. The first of these three analogues is the axe-blade which I have just described, and which is the result of an attempt to use the material and method of an Indian art for the production of an European form. The second analogue is to be found among the rock engravings which form so curious a feature in the scenery of British Guiana. These engravings are pictures cut with lines varying from $\frac{1}{10}$th to half an inch in depth on the faces of solid granite rocks. Generally, the objects represented are such as are familiar to the Indian; but in one case, a ship, which, if I may judge from the few European contemporary drawings I have been able to find, is a galley such as was used by the Spaniards in their earliest visits to the South American coasts, is represented. In this case also, therefore, the Indian artist used his art to produce an unfamiliar form first shown to him by Europeans. The third, and last, analogue is to be found among the pottery of the Indians. These people make all the vessels required for their own use of a few, I think, of only four

many already described. You will find a good account of such in Schlieman's work on 'Troy,' p. 219.

"There appear to be fragments of two urns; so I would conclude from slight differences in the slopes of two pieces, but I have so few of the fragments and parts that I have not been able very satisfactorily to reconstruct the urns."

About 10 yards north of this interment there was another small hollow in the drift, the bottom of which was also baked, but no remains of any kind were obtained from it, except a few small fragments of charcoal; probably the greater portion had been carried away with the denudation of the cliff.

JANUARY 10TH, 1882.

MAJOR-GENERAL PITT RIVERS, *President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following presents were announced, and thanks voted to the respective donors:—

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From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland, April, 1881.

From the ACADEMY.—Die Kaiserliche Akademie der Wissenschaften, Wien: Sitzungsberichte philos-histor. Classe, 1880. 97 Band, Hefte 1, 2, 3, 1881; 98 Band, Hefte 1, 2.

Sitzungsberichte math.-naturw. Classe, I. Abthlg. 1880: Nos. 8-10, 1881, Nos. 2, 3, 4. II. Abthlg. 1880, Nos. 8-10; 1881, Nos. 1-4. III. Abthlg., 1880, Nos. 8-10; 1881, Nos. 1 and 2.

——— Almanach, 1881.

From the ACADEMY.—Atti della R. Accademia dei Lincei, Vol. VI, fas. 2.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1517-1520.

——— Journal of the Royal Geological Society of Ireland, Vol. XVI, Part 1.

last forty years, such clubs are no longer made. The few that are still to be found in the possession of Indians are made entirely of wood. But there is an Indian tradition that they used to be made more formidable by the addition of a stone blade; and in the Christy collection there is a club of this sort with a small stone blade inserted in one side, as the blade of an axe in the handle. The blade of this Christy club resembles so very closely the two somewhat peculiar stone blades now under notice as to afford strong reason to suppose that they were identical in purpose; and this receives confirmation from the curious fractures at the narrow ends of my blades. The fracture is not only exactly such as would be made if a blade of this kind were broken off by a sudden shock from a club of heavy wood into which it had been inserted in the way I have suggested, but is also, on the one hand, exactly alike in both these examples, as well as in all other blades of the same character which have come under my notice; and is, on the other hand, of a kind which, as far as I am aware, is not exhibited in blades of any other shape.

There is another circumstance which, though in itself perhaps of no great significance, may be mentioned in connection with this suggestion. Having on one occasion asked some Indians in the neighbourhood of a shell mound—when, therefore, stone axe-blades were not very difficult to procure—to show me how they thought such implements ought to be fastened into handles, they illustrated their ideas by procuring examples and attaching them. The nature of the result is represented in this woodcut.

The handle of the axe thus produced is of light wood which would certainly split at the first blow, however slight; and the heavy blade is inserted in a way quite different from that in which stone blades are usually supposed to have been fastened into the handles. The whole implement appears, in fact, absurd. But closer attention shows that the result, allowance being made for the use of light, instead of heavy wood, and for the haste and want of serious purpose with which my example was made, is exactly such as, according to my suggestion, the war clubs were.

The facts just mentioned suggest another reflection. The reason of the abandonment of the use of stone implements generally was of course the acquisition of metal implements of European manufacture which better answered the same purposes. But though Europe supplied such articles as knives and axes, it did not supply war-clubs; and the Indian had to make the latter for himself, long after he had given up making

the former. It seems probable that the purpose for which Indians most recently worked stones was for these blades of war-clubs. That they eventually gave up even this survived practice, and adopted the fashion of making their clubs with the difference of the omission of the blade, was probably due to the fact that, all other stone implements having been supplanted by those of metal, the art of working in stone was so little practised that it was soon lost, and the Indians were no longer able to make even blades for their war-clubs.

Fig. 3, Plate XXXVI*, represents the commonest type of all in Guiana. The shape varies slightly, but the outline has been well compared to that of the section of a "button-mushroom," which has been cut in half from the apex of the cap down through the stem. Implements of this form, though they occur in all the three ways which have been described, are especially abundant in the shell-mounds; and from this circumstance, as well as from the fact that they can hardly have been very formidable weapons, it seems not unlikely that they were domestic implements such as would be used for pounding, and for cracking shells of molluscs and bones of animals. It is, however, noteworthy, and not readily explicable, that these implements have the groove on each side, dividing them into handle and blade, which is exhibited also in examples of many other forms from this part of South America.

Fig. 4, Plate XXXVI*, is a small, but beautifully-finished blade, in which grooves, such as are spoken of above, occur in a somewhat varied form. In this case they are just such as would be most favourable to lashing the stone on to one side of a stick. The grooves, or to use what is in this case a more expressive word, the nicks, are in fact very like those which the Indian still makes in the cross-beam of his house at the point at which he is about to lash it with flexible plant stems to the upright corner post. Yet even if we suppose it to have been thus lashed to a wooden handle, it is somewhat difficult to realise that such a tiny axe can have been of much practical use.

In fig. 5, Plate XXXVI*, we have again a grooved form, but with the difference that just below each groove there is a projecting shoulder, which probably had some definite use, but which certainly makes the implement approach more nearly than any other I know from Guiana to the elaborate stone implements of the island Caribs.

This being the last grooved implement which I shall have occasion to mention, I take the opportunity to say that I can find no satisfactory explanation of these grooves in the literature of the subject, and that I should be greatly obliged for any information on the point.

Fig. 6, Plate XXXVI*, represents a very peculiar example, much resembling in shape a human foot with the leg as far as the knee. The cutting edge is where the knee would be in a leg; and the sole of the foot is so hollowed as exactly to fit the thumb when the stone is grasped with one hand. There can be no doubt that this implement was never intended to be fitted to a handle, but was grasped in the hand; and thus held, it would answer the purpose of a chisel or small adze, and would be a formidable offensive weapon if its holder was at close quarters with an antagonist. Mr. Tylor has pointed out to me that some American Indians, I believe in British Columbia, have been seen to fight with stones thus grasped in the hand, and that this is done with so great agility and dexterity that the Indian armed only with a stone in his hand can prove formidable to an opponent armed with a revolver. My implement was possibly used in this way.

Fig. 7, Plate XXXVI*: This, the last example, is far the most peculiar. It so closely mimics the shape of an ordinary European hatchet blade that it is impossible to doubt that it is a copy in stone of such a metal blade; and it is so beautifully finished that it must have been made while the art of working stone was still thoroughly understood. It must, therefore, have been made after the arrival of Europeans in the country, but before the art of the stone-worker had degenerated. Its date is, therefore, probably to be attributed to the 17th century.

Finally, and in connection with this hatchet, it may not be uninteresting to point out the analogy between three different objects of Indian manufacture, all of which belong to one stage in the history of Indian development. The first of these three analogues is the axe-blade which I have just described, and which is the result of an attempt to use the material and method of an Indian art for the production of an European form. The second analogue is to be found among the rock engravings which form so curious a feature in the scenery of British Guiana. These engravings are pictures cut with lines varying from $\frac{1}{10}$th to half an inch in depth on the faces of solid granite rocks. Generally, the objects represented are such as are familiar to the Indian; but in one case, a ship, which, if I may judge from the few European contemporary drawings I have been able to find, is a galley such as was used by the Spaniards in their earliest visits to the South American coasts, is represented. In this case also, therefore, the Indian artist used his art to produce an unfamiliar form first shown to him by Europeans. The third, and last, analogue is to be found among the pottery of the Indians. These people make all the vessels required for their own use of a few, I think, of only four

definite shapes; but, sometimes, though very rarely, about their houses may be seen vessels made at idle moments and not for use, evidently copied from European forms. The rarity of these imitative attempts may be illustrated by the fact that, among very many hundreds of vessels of genuine Indian shape, I have not met with more than half-a-dozen imitated by Indians, at their own instigation, from European shapes.

Thus the stone hatchet, the rock-pictured ship, and these exceptional pieces of pottery, alike show the power of Indians to adapt their methods of art to the production of European forms; and the rare occurrence of such examples illustrates the rarity of the exercise of this power.

Explanation of Plate XXXVI.*

Figs. 1 to 7 represent seven stone implements from British Guiana, brought to this country by Mr. Everard F. Im Thurn, and described in detail in the foregoing paper. All the figures are drawn to one-half linear scale.

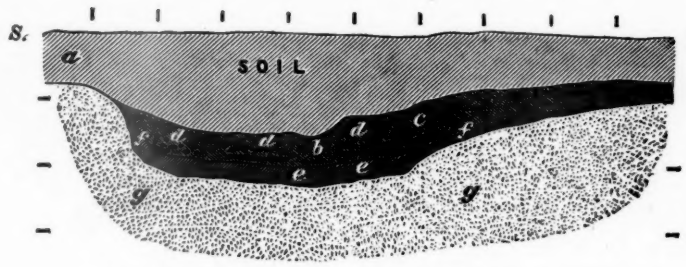
On SEPULCHRAL REMAINS *at* RATHDOWN, CO. WICKLOW.

By GERRARD A. KINAHAN, Esq.

(A Paper read before the Institute on June 14th, 1881.)

WHILE examining the drift composing the cliffs to the north of Greystones, I observed that some of the fine sand in some places appeared to have been burnt or baked; the exposures having been caused by falls of the cliff after the severe frosts of January, 1881. On closer examination it occurred to me that they might be the remains of some prehistoric interments, as in one of them there were fragments of burnt bones and stones, also some rude pottery.

As represented in the accompanying section the surface of the ground is quite level; and probably has been tilled for ages, although for some years back lying idle. The soil is from 9 to 12 inches deep, overlying gravel and in places fine sand. Where these remains occur in the townland of Rathdown, the subsoil is a fine yellow sand, and in it there is a hollow.



SECTION SHOWING POSITION OF THE SEPULCHRAL REMAINS.

a Soil. *b* Black earth with burnt stones. *c* Charcoal. *d* Fragments of urns. *e* Fragments of bones. *f* Baked sand. *g* Fine sand.

The hollow as seen in section on the face of the cliff is 7 feet long, its termination being well marked to the south, while to the north it gradually tails out. The bottom of this hollow is bounded by fine sand which is baked for a depth of about 3 inches; resting on this is a layer of black earth, about 6 inches thick, containing fragments of burnt bones, charcoal, and rude pottery; the pottery evidently resting *above* the bones, which formed a layer about 2 inches thick; above and surrounding the pottery, in many cases resting on fragments of it, were numerous angular burnt stones, generally small, but nothing like a flag was observed. From the position of these, it may be suggested that originally they covered the urns, and that the breaking up of the latter was due to their superincumbent weight. The urns seemed to be two in number, that to the south being red, most pieces of it occurring between the 2 and 3 feet vertical lines, the other was less burnt, and was certainly inverted, although fewer fragments of it were obtained. The bones, in very small fragments, were all outside the urns. Such remains as could be collected were submitted to Dr. Frazer, M.R.I.A., who has favoured me with the following remarks:—

"There are fragments of burned bones much acted on by fire, and curled from the heat, but apparently only parts of one skeleton, and even this fragmentary. A few of the bones can be recognised; thus there is a small fragment of the frontal bone, a few fragments probably of the thigh bone, and also some of the tibia and fibula, and there is a fragment of the lower end of the radius; from the latter bone it would be probably fair to conclude the person was an adult, and from the narrow edge of the tibial fragments the bone was probably platycnemic.

"The urns are made of rough clay, with fragments of mica perceptible, and the workmanship agrees in all respects with

many already described. You will find a good account of such in Schlieman's work on 'Troy,' p. 219.

"There appear to be fragments of two urns; so I would conclude from slight differences in the slopes of two pieces, but I have so few of the fragments and parts that I have not been able very satisfactorily to reconstruct the urns."

About 10 yards north of this interment there was another small hollow in the drift, the bottom of which was also baked, but no remains of any kind were obtained from it, except a few small fragments of charcoal; probably the greater portion had been carried away with the denudation of the cliff.

JANUARY 10TH, 1882.

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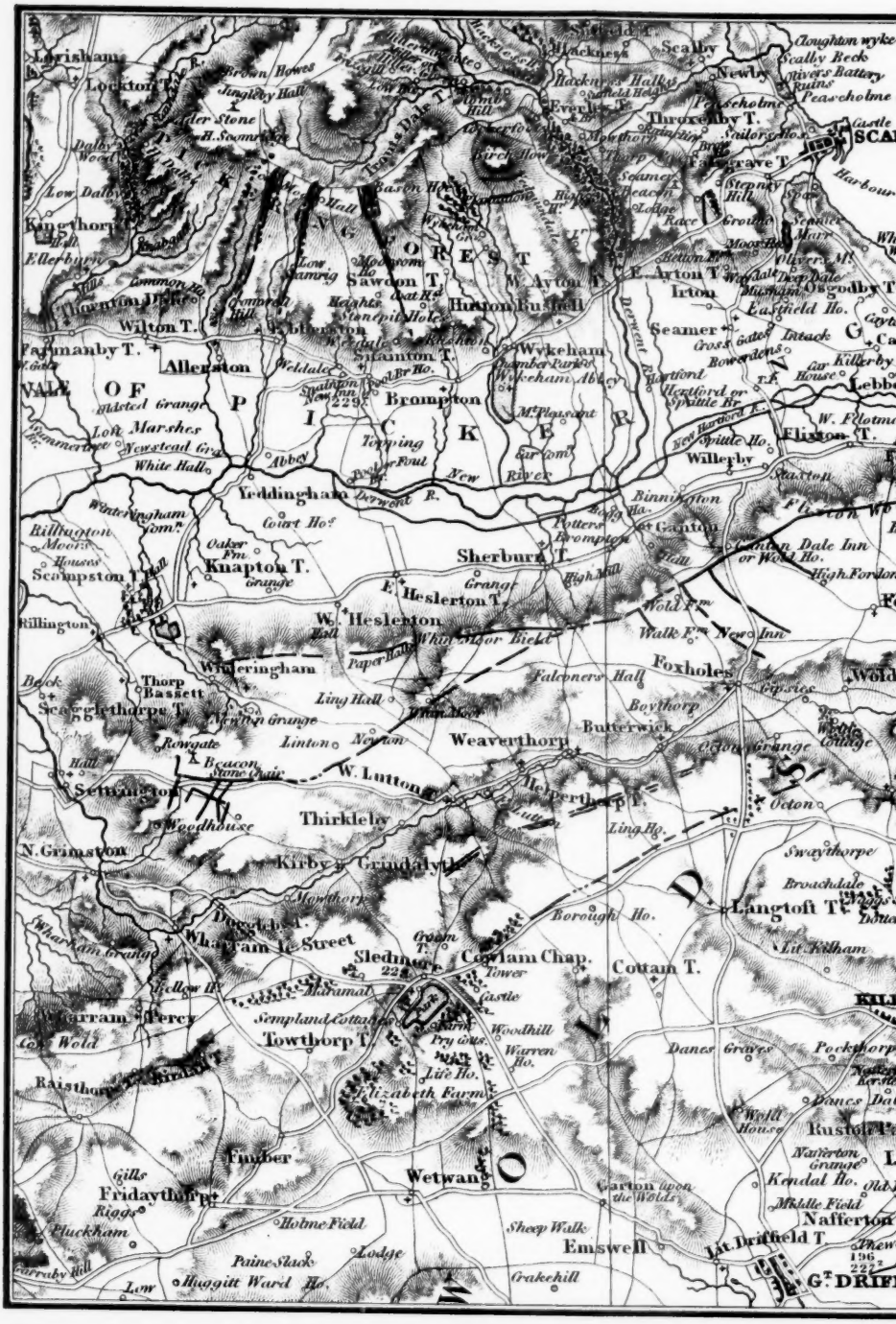
——— Journal of the Royal Geological Society of Ireland, Vol. XVI, Part 1.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Foxholes
Butterwick
Weaverthorpe
Settrington
Thirkleby
Kirby Grindalythe
Sledmere
Towthorp T.
Finmer
Wetwang
Fridaythorpe
Emswell
Nafferton
Driffield
Langtoft
Cottam T.
Rudston
Kendal Ho.
Middle Field
Sheep Walks
Grakehill
Holme Field
Lodge
Huggitt Ward Ho.
Paine Slack
Blackham
Gills
Riggs
Low
Carraby Hill
Wold
Raisthorp
Percy
Wharram le Street
Wharram Grange
Thorp Bassett
Scagglethorpe
Rillington
Scampston
Knapton T.
Allerston
Sawdon T.
Brompton
Wykeham
Hutton Buscel
Ayton
Irton
Seamer
Throxenby
Scalby
Newby
Scarborough
Harbour
Castle
Lebberston
Willerby
Binnington
Potters Brompton
Gt. Driffield

Stanford's Geog.l Estab.t London

From the Society.—Journal of the North China Branch of the Royal Asiatic Society, 1880.
——— Journal of the Asiatic Society of Bengal. Vol. L, No. 244.
——— Proceedings of the Royal Society. No. 216.
——— Proceedings of the Royal Geographical Society. January, 1882.
——— Bulletin de la Société de Borda, Dax, 1881, Part 4.
——— Verhandlungen des Naturhistorisch-medicinischen Vereins zu Heidelberg. N.S. III, Part 1.
From the Club.—Transactions of the Epping Forest and County of Essex Naturalists' Field Club, October, 1881.
From the Editor.—"Nature." Nos. 633–636.
——— Revue Scientifique. T. XXVIII, Nos. 25–27; T. XXIX, No. 1.
——— Knowledge. No. 5.
——— The American Antiquarian. Vol. IV, No. 1.
——— Matériaux pour l'histoire de l'homme. T. XII, 10e and 11e liv.

It was announced that Mrs. Bathoe and Hugh Falvey, Esq., had been elected members.

Mr. Bryce M. Wright exhibited a set of sixteen portraits of the Incas, copied from the native Indian drawings in the temple of the Sun.

Mr. Worthington G. Smith exhibited some stone implements from the north-east of London.

The following paper was read by the President:—

On Excavations *in the* Earthwork *called* Dane's Dyke *at* Flamborough *in October*, 1879; *and on the* Earthworks *of the* Yorkshire Wolds. By Major-General Pitt Rivers, F.R.S., P.A.I.

[With Plates XXXVII to XXXIX.]

Flamborough Head, as most persons are aware, is a promontory on the Yorkshire coast immediately to the north of Bridlington, in lat. 54° 6′ N. and long. 0° 12′ E., and as this paper has to deal with an entrenchment thrown up on it obviously for warlike purposes, and with other entrenchments apparently connected with it further inland, it may be useful to consider briefly the topography of the neighbourhood in reference to military operations and more especially to the landing of a considerable force in this place in pre-historic times or the retreat of such a force by this place to the sea. (*See* Map, Plate XXXVII).

This promontory is triangular in form, its base on a north and

south line commencing at Sewerby Rocks, north of Bridlington, and ending at the Crab Rocks to the north of that, is 3½ miles; the perpendicular drawn from the point of the head to this base is about the same distance.

The ground comprised within this triangle and for some distance inland to the west is high, being composed of chalk hills cut up into valleys and ravines of greater or less width and affording numerous positions for defensive purposes.

The promontory itself is bounded on the two sea sides by high and inaccessible cliffs with the exception of two gaps, one on the north and the other on the south side formed by narrow and deep ravines running down into the sea and called the North Sea Haven and South Sea Bay. At Sewerby Rocks the southern coast-line turns and runs southwards passing by Bridlington Quay and Hornsey, but the character of the coast-line changes; leaving the high chalk cliffs at Sewerby Rocks, the shore southward is low and composed of boulder clay and alluvium. The southern boundary of the chalk hills, instead of conforming to the line of the coast, runs on inland in prolongation of the south side of the promontory extending in a direct line west by south towards Burton Agnes and Driffield, and the whole of the country between these hills and the sea southward is low and marshy, intersected with watercourses, and probably in pre-historic times a swamp inaccessible for warlike purposes. It is important to bear this fact in view when considering the direction and uses of the entrenchments on the high ground, that the flanks of the entrenchments which rest upon the edge of the hills on this side would probably be protected by an impassable morass.

On the north side of the promontory as you go westward from the point, the coast line does not turn northward until you come to Speeton, a distance of 7 miles, the whole of this distance being high cliff. Here the coast-line leaves the hills and runs up along a low shore to Filey, but the edge of the hills runs on in continuation of the line of the cliff 3 miles further westward to beyond Righton, affording strong ground as a protection from the north.

If we now turn southward and place ourselves on the site of the ancient village of Argam with our backs to the point of the promontory looking westward over North Burton in the valley below, and survey the whole of the wide extent of country which presents itself to the eye from this point, the whole of the ground appears as if it had been scooped out by nature for the defence of an army facing inland and westward, and having its centre in the place on which we stand. Immediately in front is a large and broad valley running north and south and protecting

the front of the position which runs along the hills on the east side of it. The right of this position is guarded by the steep declivity at Righton and the left by the valley of the Gipsey near the village of Rudstone, celebrated for its monolith. In our front westward, beyond the north and south valley I have spoken of, runs the Wold valley in the direction of Weaverthorpe, exposed to view for miles from the position at Argam, and on our right and left front, also beyond the valley, are the chalk hills known as the Yorkshire Wolds which bound the Wold valley on both sides. We shall see when we come to describe the entrenchments, that the advantages of this position were not lost sight of by the people of pre-historic times.

Passing now out of this region to the north-west into the valley of the Derwent and the neighbouring hills, all of which country is occupied by the entrenchments of the pre-historic people, we find that the river running southward from Hackness to near Willerby here turns to the west, and runs along the broad flat-bottomed valley of the Derwent, which is some four miles in width, and probably in pre-historic times, like so many other valleys in this country, an impassable jungle traversed by narrow paths and openings through a thick growth of underwood, inaccessible for warlike purposes to any but a force with a narrow front penetrating through it in file. The valley is bounded on the south by the long and nearly straight escarpment of the chalk hills rising to 400 feet above, and commanding the whole extent of it in a line generally parallel to the river. On the north the valley is bounded by hills of the oolite formation nearly equal in height, but intersected by numerous long ravines running southward into the valley, and affording several positions of great strength for the defence of an army advancing inland to the west, or retreating eastward to the sea. The highest part of these hills are towards the north, along the head of the ravines above-mentioned, and the whole of this range of hills is bounded on the north by a deep winding valley formed by Troutsdale Beck, a bend of the Derwent, and a continuation of the same valley, passing by Hackness and Scalby to the sea north of Scarborough.

Reviewing the whole district under consideration, we find that it consists of four patches of high ground separated from each other, and bounded by five principal valleys, viz.: the triangular patch of hills to the east with Flamborough Head for its apex, separated from the wolds by the north and south valley of the Gipsey Race before Argam, and bounded on the south by the Gipsey valley, and further on by the lowland south of Burton Agnes. Next we have the two parallel patches of the north and south wolds, separated from one another by the wold

valley, and bounded on the north by the Derwent valley, and lastly the oolite hills, bounded on the south by the Derwent valley, and on the north by the valley running in a winding direction from the Troutsdale Beck to the sea at Scalby.

Assuming most of the low ground to have been occupied in pre-historic times by marsh and jungle, there would remain only the plateau lands on the hills for the inhabitants to live upon, and here, as might be expected, we find the ground covered with their remains, consisting of tumuli, pits, camps, and entrenchments, which are, perhaps, more abundant here than in any part of England, owing to the wolds having only recently been brought under cultivation. Much of these have already been destroyed by the plough, but they have been well delineated on the ordnance maps, and it is important to consider the condition of things implied by the direction of the intrenchments before they have entirely disappeared.

Flamborough Head and promontory must of course have formed the base of operations for warlike purposes in any case, whether we are dealing with an invading or retreating force; in the former case it would be the first, in the latter the last point occupied by any people at war with the inhabitants of the interior. Its high cliffs precluding all possibility of attack from the sea, and leaving only the land side to be attended to, and the two landing places above described affording such access to the sea as might be necessary, we should naturally expect to find an entrenchment facing westward and occupying the first suitable position westward as you go from the point towards the interior, covering also the two landing places in such a way as to leave them available for the people within the work, the two flanks resting on the high cliffs before they leave the sea-coast owing to the turn of the shore, and the front covered by such low ground and declivities as might present themselves in the parts most suitable for the position of the flanks. Such an entrenchment we do find commonly known as the Dane's Dyke, a misnomer as will subsequently appear, but not more erroneously named than others which are attributed to those pirates and ravagers of the sea coast of England in other places, or those which go by the name of Cæsar elsewhere.

This dyke runs north and south a distance of $2\frac{1}{2}$ miles from sea cliff to sea cliff and at a distance of 3 miles from the centre of it to the point of the promontory. It has a ditch on the west or inland side, showing that the enemy was expected from that quarter. Its position appears to have been determined by a deep but not very broad ravine which runs from the interior southward into the sea, and protects the left

end of the entrenchment for 7 furlongs, or about one-third of its entire length. The rest of the line of the dyke is well chosen for defence, following the slope of the ground so as to command a good view of the land on the outside, but like many pre-historic entrenchments, especially dykes, it does not follow closely the sinuosities of the ground, but cuts across the spurs of the hills where the turns of the latter are abrupt. This is particularly the case near Dyke House, where the entrenchment instead of bending to see down into the ravine as a modern fortification would do, cuts across two spurs and rejoins the main ravine further on, a defect in the system of fortification common to pre-historic and early times, and in no work more conspicious than in the great Roman wall near Carlisle, the engineer of which allowed dead ground to run up in some places close outside the fortification. In like manner the dyke omits to take advantage of Cockerill Hill, as it should have done, but it is nowhere commanded from the outside; it is judiciously chosen, and on the whole commands an extensive view of the country for some distance to the westward. There are twelve gaps through it, some of which are no doubt modern, one is on the extreme right flank of the dyke, between it and the sea cliff—a position not unusual for the entrance of a pre-historic work; another near the Dyke's Plantation, in the right centre of the dyke, is admirably constructed in a re-entering angle, evidently intentionally formed to give a cross-fire on the outside. The gap through which the road from Bempton to Flamborough passes in the centre of the position appears also to be an old entrance, because the road here turns as if it had been diverted in order to pass through the gap. A small stream coming from the north also runs through the entrenchment here passing into the inside of the dyke, and affording a supply of water to the defenders, running out again further on to the south.

The entrenchment is of nearly uniform height all along, being about 18 feet above the level of the ground, and having a ditch 60 feet wide on the outside. Of the defensive character of this entrenchment there cannot be the slightest doubt; it is a work of great strength, probably surmounted originally by a pallisade on the top of it and implying a large and well disciplined force for the construction and defence of it.

With the exception of two entrenchments between the north end of Dane's Dyke and Speeton, which run from the edge of the cliff southward and the ends of which have been ploughed out by cultivation, nothing of any consequence occurs in the way of military defence until we come to the great position at Argam before alluded to. Here we find the remains of the great earthwork known as the Argam Dyke running along the

edge of the hills in the precise position which I have indicated as forming the first position for defence as we go inland from the Dane's Dyke. Immediately to the west of Righton upon ground which naturally forms the shoulder and key of the position on that side, we find the entrenchments running round the hill with a ditch to the westward and abutting upon the steep declivity on which the flank of the position rests. From that point southward to the west of the Doterel Inn the line of entrenchments has been destroyed by cultivation. This must have been the weakest part of the position, but the banks reappear immediately to the east of the Bartingdale plantation and run in a direction south-by-west towards Argam. The line here does not follow the curves of the hills but always commands the ground to the west, whilst from Argam to the hills immediately above and to the east of Rudston the position is such as any general of modern times might have chosen for the defence of the ground, the entrenchments conforming to the lines of the hills and commanding a gentle glacis slope to the westward. A great part of the dyke has been destroyed in the formation of a modern road which runs along it, but here and there parts in more perfect preservation show that it consisted of three banks and two ditches contained within a width of about thirty-five paces. It is noteworthy that the entrenchment does not run down to the village of Rudston but rests on the high ground above and to the east of it, running towards the valley of the Gipsey which guarded the left flank of the position. Beyond the Gipsey to the south there is a long hill running north-east by south-west called Wold Gate, which if not occupied would have facilitated the turning of the left flank of the position, and accordingly we find that entrenchments were thrown up on the top of it exactly in prolongation of the Argam Dyke. What the nature of these entrenchments were it is difficult to say now, as they are mostly destroyed by cultivation, but they evidently guarded the space between Rudston and the low ground already referred to beyond Burton Agnes. The front of the position from Righton to Rudston is 5 miles, which was fortified by a continuous dyke. The extension from Rudston to Burton Agnes is 3 miles more. A combination of circumstances, including its generally strong position on the side of the valley, the fact of its being the first position inland from Flamborough Dyke, the position of the ditch, its strong flanks, and general direction, unite in favouring the opinion that the Argam Dyke is in reality a defensive work and not a mere road from Filey to Rudston, though it may undoubtedly have served both purposes, both being places of great antiquity.

Passing now to the north wolds we find that an entrenchment

runs along the top of the escarpment of the Derwent valley. It appears originally to have extended from Hunmanby on the east, to above Heslerton on the west, and guarded the north wold hills from an attack from the Derwent valley. A branch from this dyke runs in a south-westerly direction from the high ground above Sherburn to the high ground at Linton, and there turns to the west along the hills to Thorpe Basset Wold. This line defends the wold hill from any attack by the north-west up the valley at Wintringham. I have followed this line, and though complicated in some places, it is everywhere consistent with the idea of a defence against the north-west.* Behind, and parallel to this, two miles in rear, are double dykes running between Kirby-Grindalythe and Butterwick, also occupying a strong position on the hills towards the north-west; behind this again, 1½ mile in rear, are other dykes parallel to the last, running between Sledmere and the hills west of Thwing, also occupying a position for defence against the north-west. Besides these, the north wolds are covered with numerous smaller entrenchments running more or less in a north and south line. It would unnecessarily occupy the attention of the audience to record here the minute observations on which alone a satisfactory judgment can be formed. I have examined them carefully, and they all appear to me consistent with a defence against an inland enemy. They appear for the most part to be fortified boundaries of lands. The villages having mostly been situated on the slopes of the hills near the springs between the wooded bottoms of the valleys and the open downs, the dykes run over the chalk hills behind, and probably mark the extent of the pasture lands, view being always had to an attack from the west. I have found no well-defined example in this part of Yorkshire of a dyke which appeared to have been thrown up as a defence against the east side.

But the most instructive portion of the whole district is the oolite range to the north of the Derwent valley; these hills, as I have already said, are cut up by deep ravines running from the highest ridge on the north to the valley on the south, and affording numerous strong positions for defence. Givendale is a ravine which runs into these hills to the north of Allerston, it is there about 1,000 feet wide and 200 feet deep, with very steep sides. A single line of entrenchment runs along the eastern brow of it; higher up the ravine becomes shallower,

* When this paper was read at the York meeting of the British Association, Mr. Isaac Taylor, who lives near Wintringham, made some remarks tending to show that an entrenched camp existed on the west flank of this dyke, which he conjectured to be of later date than I assume for the majority of the entrenchments. Excavations alone can prove whether this is the case.—A. P. R.

and less formidable as a natural defence, and the entrenchment on the brow is doubled. It has here two banks and two ditches, each 6 feet deep, within a width of 80 feet; and the eastern bank commands the western. Within 2,000 feet of the brow of the Troutsdale Ravine the Givendale Ravine shallows out to nothing, leaving a ridge of ground between the two ravines entirely devoid of any natural defence, and here the entrenchments are increased to four ramparts and four ditches across the weak ground. The ends are thrown back on the brow of the Troutsdale Ravine so as to cover the right flank. This is the system of defence persistently adopted in all pre-historic works in this country, whether camps or dykes. The number of ramparts are proportionate to the natural strength of the ground in front, and as the latter diminishes the former are increased, thereby affording, what the engineers of that time appear to have considered, a fortification of equal strength throughout, it being a principle of defence at all times that a chain is no stronger than its weakest link. A fortification is no stronger than its weakest point. This part of the defences are covered on the west again by lines of pits of very remarkable construction, some being from 17 to 24 paces apart, others touching one another 12 feet wide, and at the present time about $2\frac{1}{2}$ feet deep below the surface ground excavated and thrown up around them. These pits are marked on the ordnance map as ancient, if so, they are well worthy of careful examination. Can they be lines of pitfalls dug outside the entrenchments as an additional defence on their weakest side? About a mile to the rear of this Givendale line eastward we find another ravine parallel to it called Scameridge Slack, fortified in precisely the same manner, a single entrenchment runs along the east brow of the deepest part, and this increases to six trenches across the neck of high ground adjoining the Troutsdale Beck. This appears to have formed a second line of defence. Further to the east again another and third ravine called Wydale is fortified in the same manner, except that the number of ramparts on the weak point extends to twenty in all, and covers the whole of the western slope of the hill; it might be supposed from their number that they could hardly be entrenchments, but no other interpretation can be put upon them. Two small tumuli are seen in the centre of these banks which appear to me worthy of the attention of local archæologists, for by careful examination of the stratification of the soil in the banks and in the tumuli it might be possible to ascertain which of the two are the earlier structures. To the east of this in the direction of Scarborough numerous other entrenchments occur. I have examined them and they all appear to me in harmony with the

general idea of westerly defence, allowance being made for the shifts and vicissitudes of a protracted war. I assume that an invading force having landed at Flamborough, a portion crossed the Derwent and occupied the hills to the north, fortifying each successive strong point as they advanced, or else that a retiring body has chosen these positions whilst retreating towards the sea. I should mention that all the dykes are ploughed out by cultivation on the south, and that on the north they all rest on the steep and almost inaccessible slope of the Troutsdale Ravine.

These observations were made in 1867 whilst accompanying Canon Greenwell during his excavations in the tumuli which cover this district, and I for some years contemplated an excavation in the Dane's Dyke to ascertain if possible the period to which it belonged. I cannot say that I received much encouragement from my archæological friends, most of whom thought, and with much reason, that the chance of finding anything in the small portion excavated was too remote to warrant the undertaking; but in the meantime I had acquired some experience in the excavation of earthworks in other parts of the country, and the results of those diggings led me to form a more hopeful view of the prospect. Although objects of value rarely turn up in the bodies of ramparts, they almost invariably produce reliable evidence of the time of their construction. A cutting through a rampart affords the only reliable evidence of the date of a work. Entrenchments were often occupied in after times by other people who left traces of their occupation upon them, but any object found on the old surface line beneath a rampart must be as old as the rampart or older, whilst any object found in the rampart itself must very probably be the date of its construction.

With the kind permission of Mrs. Dormer, to whom the ground belongs, I at last commenced cutting a section through the Dane's Dyke, on the 13th October, 1879. I selected the spot close to the Bempton and Flamborough Road, at which the stream which runs from the northward passes to the inside of the dyke, thinking that as this was a spot from which a water supply had been obtained by the defenders, they would probably have congregated on the rampart and dropped their utensils about in this place.

The cutting was made by a succession of trenches 20 feet in length, and 8 to 10 feet wide, side by side (*see* Section, Plate XXXVIII), commencing the first trench near the foot of the interior slope, and throwing the earth towards the inside of the rampart; the second trench was then dug above and parallel to it, throwing the earth into the first trench, and so on; by this

means a section 20 feet wide through the rampart was obtained. The objects found were noted hour by hour as the work went on and the position of anything of importance was at once taken with a spirit level. Each trench was dug down until the line of the old surface beneath the rampart was reached, and this process was continued into the body of the rampart until it was thought that sufficient evidence had been obtained.

By cutting a rampart in this way I have found that a cleaner section can be taken, and the position of the objects marked with greater accuracy than by cutting a continuous section through. A wall of earth about 1 foot wide was left between each trench.

The following are the several seams of earth forming the portion of the rampart excavated, commencing from the top:—

1st. Silting consisting of a deposit of brown mould commencing at a point on the top of the rampart and thickening gradually to 3 feet at the foot of the interior slope; it had been formed on the top by the growth of gorse and vegetable soil subsequently to the construction of the rampart and the lower part of it by silting from the top during subsequent ages. All the objects contained in this silting must be subsequent to the construction of the rampart, or of the period of its occupation.

2nd. A seam of light yellow and blue clay also commencing at a point on the top, and to the west of the former, and thickening to 3 feet at the foot of the interior slope; this seam formed the upper part of the original body of the rampart, and consisted of the last portion of soil excavated from the ditch and thrown down the slope from the top.

3rd. An irregular seam of blue, dark-brown, and peaty earth, stratified in seams of dark-brown and yellow under the crest of the rampart.

4th. Gravelly clay, 2½ to 3 feet, being deposits thrown up on the rampart from the lower parts of the ditch.

5th. Black peaty earth reached in the fourth trench only, being the surface soil of the ditch first thrown up to form the rampart.

6th. A nearly horizontal dark seam about 1 foot thick, marking the old turf and surface soil before the earth was thrown up on to it to form the rampart. All objects found on or beneath this line must be older than the formation of the rampart. This was very clearly marked everywhere; it sloped up here slightly towards the outside, owing to this being the part in which the watercourse having passed to the inside, the ground on that side was slightly lower than on the outside.

The following were the objects brought to light by the excavations:—

1st. A fragment of brown smooth pottery with a hole (Fig. 1, Plate XXXIX), evidently intended to suspend the pot by means of a cord; such a piece might be of various periods. Suspension holes of this kind were not unfrequent in the pottery of the bronze age: it was found at the bottom of the silting at the foot of the interior slope, and belonged to the period of the first occupation of the rampart. (See Plate XXXVIII, 1.)

2nd. A cluster of flint flakes, 6 feet 7 inches beneath the surface in the third trench in the blue seam in the body of the rampart; they must have been deposited during the formation of the rampart. (Plate XXXVIII, 2.)

3rd. A flint scraper, 4 feet 7 inches beneath the surface in the third trench in the light yellow clay of the body of the rampart (Fig. 2, Plate XXXIX, Plate XXXVIII, 3). It is of the kind commonly found on the surface of the Yorkshire Wolds.

4th. A flint scraper, 13 feet 2 inches beneath the surface in the fourth trench, just beneath the old surface line (Fig. 3, Plate XXXIX, and Plate XXXVIII, 4); it must have laid there before the rampart was erected.

5th. Close to the last, a well formed flint arrow-head (Fig. 4, Plate XXXIX, and Plate XXXVIII, 5), also on the old surface line, which like the last must have laid on the ground before the rampart was thrown over it.

6th. A small flint axe-head (Fig. 5, Plate XXXIX, and Plate XXXVIII, 6), 1 foot 6 inches beneath the surface in the fifth trench, just beneath the silting, with numerous flint flakes; it must have been put there after the rampart had been formed, and during the occupation of it by the defenders. It appears to be a natural fragment chipped to an edge at the broad end.

7th. A flint scraper (Fig. 6, Plate XXXIX, Plate XXXVIII, 7), 3 feet beneath the surface, and 1 foot 3 inches beneath the last; it must either have worked down from the surface of the top of the rampart, or have been deposited during the construction of it.

8th. A small chipped flint celt (Fig. 7, Plate XXXIX), close to No. 6 (Plate XXXVIII, 8) in the middle of a thick deposit of flint flakes which must have been placed on the top of the rampart after it was formed, the 1 foot 3 inches of superincumbent earth having been formed by surface vegetation which had grown over it.

9th. A half-formed flint arrow-head (Fig. 8, Plate XXXIX, Plate XXXVIII, 9), 3 feet 6 inches beneath the crest of the rampart which had either worked down from the top or been deposited during the formation of the rampart.

Besides these the whole of the interior slope of the rampart beneath the silting, and to within 2 feet of the top of the body

of the rampart, was strewed from top to bottom with flint flakes and artificially formed chips, no less than 827 of which were counted either on the top or on the slope and just beneath or in the bottom of the silting of the rampart. Below this as we dug down into the body of the rampart they died out, not more than 36 being counted in the middle of the rampart, and they became more abundant again on the old surface line, where 71 were counted in the bottom of the trenches on the same level as the scraper and arrow-head above mentioned. We see from this that the flakes must have been formed on the top of the rampart and washed down the slope with the silting during subsequent ages. But whilst excavating the top of the rampart just beneath the crest an important observation was made by the workmen. About 4 o'clock on the 23rd October, three of the men digging into the rampart at about 2 feet beneath the crest, viz., Robson, Gilbank, and Jordan-Bilton, drew my attention to the fact that all the flakes they were finding lay horizontally in the earth. I immediately went to the spot and shortly picked out 10 flakes with my own hands all lying perfectly horizontally in the earth, and unless it can be shown that such flakes have a tendency to become stratified by pressure in the earth of a rampart in after ages they were evidently in the position in which they had fallen on the surface of the rampart as they were thrown down by the people who made them. In order further to verify this important observation an extension of the trench was made along the dyke to the south, I myself observing the position of every flint flake as it lay in the earth ; 57 more flakes were here found, every one of which lay horizontally in the ground. Had these flakes belonged to the soil and been brought up and thrown down with it, they would have laid in various positions as the clods of earth containing them chanced to have fallen from the skin or basket of the pre-historic workman. Besides which the fact of finding them on the top of the rampart is alone good evidence on this point, for had they been originally strewed upon the surface of the ground and thrown up with the soil, they would have been found amongst the peaty earth at the bottom of the rampart instead of at the top, the surface soil having been the first removed to form the rampart. Another important observation was made at this time. The flakes, as I have said, were strewed along the old top and interior slope of the rampart, but on extending the cutting beyond the crest towards the outside of the rampart no more flakes were found. This I attribute to the fact of there having been a stockade on the top of the rampart, and the defenders naturally moved about and performed their ordinary avocations behind and not in front of it. It was behind the stockade, therefore, that they carried on

their flint workshops, forming axes and arrow-heads, vestiges of which were found in the deposit of flakes, and throwing down the chips on the surface as they fell off the cores, which flakes in after ages were washed down the inner side of the rampart and not the outside.

We have evidence from this that the defenders of the earthwork used flint, and consequently that the work itself is not later than the bronze period; it is, in fact, of the same age as the tumuli of the Yorkshire Wolds. The considerations of military defence to which I have referred in the former part of this paper, afford reasonable grounds for supposing that all the entrenchments of the wolds may be of the same period, as they certainly are associated with the dyke in a similar method of defence.

And now comes the question, from whence did the people come who invaded the coast at this place? The dykes of Norfolk, Suffolk, and the southern counties of England, all or most of which, I believe, will be found on examination to face inland, have been attributed to the Belgæ. They are at any rate the work of a people coming from the east of France, but it is somewhat high up upon the coast for the invaders of Yorkshire to have come by sea from so great a distance. Flamborough Head being the nearest point to the Danish coast, it is to that quarter we should naturally look for the enemy who made this point his base of operations. But Canon Greenwell, to whom we are indebted for his long and painstaking enquiry into the tumuli of the wolds, has established the fact that the people who buried their dead there were in the early bronze phase of civilisation, nothing but small triangular bronze knife-daggers and celts of the simplest form having been found in their graves. But the archæologists of Denmark have shown that the early bronze age did not exist in Denmark; the art of working in bronze was full-blown when it first entered Denmark, having been nurtured in regions further to the south. If the invaders of Flamborough came from Denmark and were, as we suppose them to be, a bronze-using people, they would have brought with them weapons and implements of a more advanced type than those found in the tumuli of the wolds. It is hardly possible that we should not somewhere or other have found weapons ornamented with the spirals and other patterns which are so universally characteristic of the bronze age of Denmark instead of the simple axe heads and daggers, which in Denmark are rarely found. We are narrowed, therefore, to the opinion that the invaders of Flamborough, if invaders they were, were the same people who landed on the south and south-east coasts of England, or else that these dykes belong to the people of the country, who having imported

the bronze culture from elsewhere, were driven to the coast by another and more powerful race who occupied the interior, and that the defences we are considering were associated with their last occupation of the soil of Yorkshire. Further than this I do not venture to particularise. The excavations and observations I have here recorded have, I trust, it will be admitted, landed us somewhat further on the road to knowledge than we were before. We have seen that, notwithstanding the traditions which connect this place with the Danes, and notwithstanding the prevalence of a Danish element in the population of this country, the traces of which have been so well brought out by Mr. Atkinson in his history of Cleveland, this ground was the scene of military operations of a much earlier people, a people who though ruder in their culture were much their superiors in the art of war, formidable in their means of offence and defence, and in the discipline necessary to construct the great works we have been speaking of.

Description of Plates XXXVII to XXXIX.

Plate XXXVII.

Map of the country near Flamborough Head showing the position of the dykes.

Dykes are marked red. Their position can only be shown approximately on so small a scale.

The site of the excavation is marked with a cross.

Plate XXXVIII.

Section of cutting through the Dane's Dyke, showing the position of the various seams, and of the implements, fragment of pottery, and flakes found in the rampart.

Plate XXXIX.

Fragment of pottery and flint implements found in and about the section of the Dane's Dyke, Flamborough.

Fig. 1. Piece of pot with hole or handle found in Trench 1 at bottom, on old surface line in silting of interior slope.

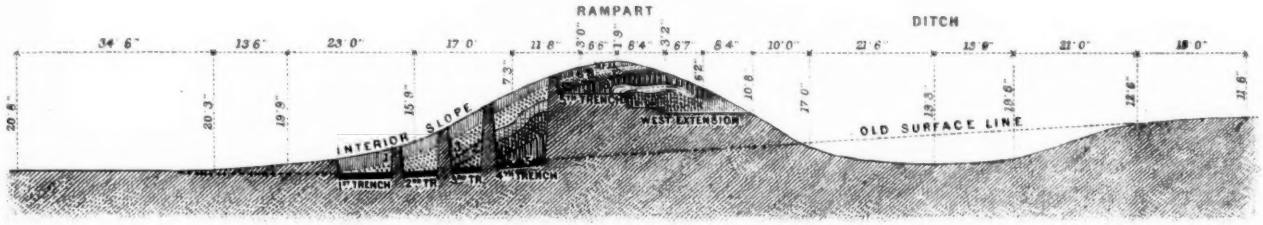
Fig. 2. Scraper or strike-a-light. Found 4 feet 7 inches beneath surface in body of rampart, Trench 3.

Fig. 3. Scraper found 8 inches beneath old surface line, and 13 feet 2 inches beneath surface in Trench 4.

Fig. 4. Arrow-head (broken point) found just below old surface line, Trench 4, south half.

Fig. 5. Hatchet-shaped flint, chipped to an edge at the top.

SECTION OF EARTHWORK COMMONLY CALLED DANE'S DYKE, FLAMBOROUGH.



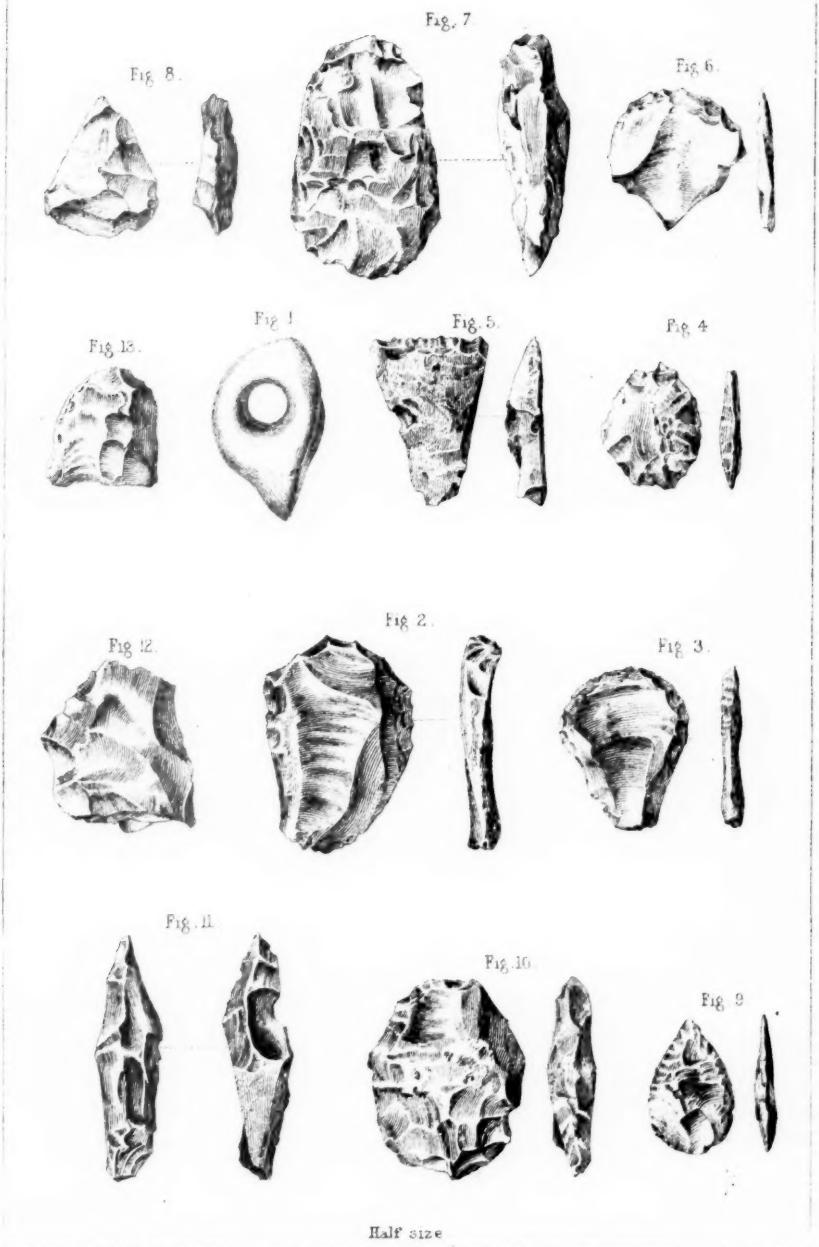
1, FRAGMENT OF POTTERY. Fig 1, Plate 38.
2, CLUSTER OF FLAKES.
3, SCRAPER. Fig 2, Plate 38.
4, SCRAPER. Fig 3, Plate 38.
5, ARROW-HEAD. Fig 4, Plate 38.
6, HATCHET SHAPED FLINT. Fig 5, Plate 38.
7, SCRAPER. Fig 6, Plate 38.
8, CHIPPED CELT. Fig 7, Plate 38.
9, HALF-FORMED ARROW-HEAD. Fig 8, Plate 38.
10, FLINT WORKED TO A POINT. Fig 11, Plate 38.
11, WORKED FLINT. Fig 12, Plate 38
12, WORKED FLINT. Fig 13, Plate 38.

SILTING
LIGHT BLUE CLAY
LIGHT YELLOW CLAY
DARK BROWN CLAY
DARK CLAY AND BLUE SEAM
BLACK PEATY EARTH
GRAVELLY CLAY
OLD SURFACE LINE
UNDISTURBED CHALK

Scale of Feet
10 5 0 10 20 30 40 50

Journ. Anthropol. Inst. Vol. X. Pl. XXVII.

J.P. & W.P. Emslie lith



Half size

J.F. & W.B. Smith, lith.

FRAGMENT OF POTTERY AND STONE IMPLEMENTS
FOUND IN AND ABOUT THE SECTION OF THE DANE'S DYKE,
FLAMBOROUGH.

Found in Trench 5, in body of rampart, 1 foot 6 inches beneath surface.

Fig. 6. Scraper found with the deposit of flakes on the top of body of rampart, in Trench 5, 3 feet beneath surface.

Fig. 7. Chipped celt found at top of Trench 5, 1 foot 3 inches beneath surface.

Fig. 8. Half-formed arrow-head top of Trench 5, 3 feet 6 inches beneath surface.

Fig. 9. Flint arrow-head found close to foot of interior slope of dyke on surface.

Fig. 10. Spear-head found on the surface near foot of interior slope.

Fig. 11. Flint worked to a point. Found at top of Trench 5, 1 foot 3 inches beneath the surface.

Fig. 12. Worked flint found in top clay of body of rampart in Trench 5, 1 foot 2 inches beneath surface.

Fig. 13. Worked flint found with numerous flakes at top of body of rampart in Trench 5, 1 foot 4 inches beneath surface.

APPENDIX.

THE following is a return of the measurements of 90 Flamborough men and women. Flamborough is purely a fishing village, and the race has bred in and in as shown by the returns in which "very pure Flamborough" means a person whose father and mother, and at least two or three grandparents are known to have been Flamborough people; "pure Flamborough" is where the father and mother only are known to be Flamborough people; and "Flamborough" means where one parent only is from Flamborough. None who are not bred in Flamborough are returned. The return includes some men in the village who have either retired from the fishing life or have been employed in selling or collecting fish; had it been confined exclusively to the seafaring portion of the community, or had it included a larger number of those who were at sea at the time, the size of these people would no doubt have been shown larger. As it is they exceed in size the population of the neighbourhood.* The hair of the head, it will be seen, is usually dark, and where not dark it is red; little or no fair hair is returned; the hair of the beard is also dark as a rule. So completely isolated have these people been in past times that it is said before the wolds were cultivated, within the memory of man, when a space of downland intervened between them and the rest of the world, it

* On comparing the average height of these Flamborough fishermen with the returns obtained by the Anthropometric Committee of the British Association, I find that they stand at the top of the list, exceeding all the counties of England hitherto returned, except Yorkshire, which has the same average stature of 5 feet 9 inches.

was even a matter of danger to approach their village; this, of course, is altered now, but still the villagers keep apart. These people show little or no trace of the fair-haired element, which is generally observable in the population of this part of Yorkshire.

I may add that the whole of the measurements were taken by myself personally. The frequent repetition of the same names will be noticed.

1*st April*, 1882.

The reading of General Pitt Rivers' paper was followed by a discussion, in which the Rev. Canon GREENWELL, Professor BOYD DAWKINS, Mr. WOOD, and Mr. PARK HARRISON took part.

FLAMBOROUGH MEN (CHIEFLY F

MEASURED BY MAJOR-GENERAL PIT

No.	Name.	Age.	Profession or Calling.	Race.	Height.	Chest.	Weight.	Width and height of Shoulders.	Head.		
									Greatest length.	Greatest breadth.	Cephal index
					ft. in.	Inches.	St. lb.				
1	John Mainprize ...	64	Fisherman	V.P. Flamborough	5 8	40½	12 6	– broad, high.	8·0	5·9	73·7
2	W. Puckley ...	59	Fisherman	V.P. Flamborough	5 10	42	13 9	– broad, high.	8·0	6·2	77·5
3	R. Major	45	Fisherman	V.P. Flamborough	5 9½	40	14 1	– broad, high.	7·7	6·2	80 5
4	S. Warcup ...	44	Fisherman	V.P. Flamborough	5 10½	40	13 11	– broad, medium.	8·0	6·4	80·0
5	J. Warcup ...	30	Fisherman	V.P. Flamborough	5 5½	40½	10 11	– broad, medium.	7·6	6·1	80·2
6	R. Cross	45	Fisherman	V.P. Flamborough	5 7½	40½	11 13	– broad, high.	7·2	5·8	80·5
7	J. Woodhouse ...	54	Fisherman	V.P. Flamborough	5 6½	40½	10 12	– broad, medium.	7·5	6·0	80·0
8	W. Cross	39	Fisherman	V.P. Flamborough	5 7½	38	11 0	– broad, medium.	7·2	5·9	81·9
9	P. Edmond ...	42	Fisherman	V.P. Flamborough	5 9½	39½	12 6	– broad, medium.	7·6	6·0	79·0
10	E. Duke	29	Fisherman	V.P. Flamborough	5 6½	38	10 7	– broad, medium.	7·6	5·8	76·3
11	J. Duke	20	Fisherman	V.P. Flamborough	6 0	41½	14 4	– broad, medium.	7·7	6·2	80·5
12	J. Knaggs ...	23	Fisherman	V.P. Flamborough	5 7½	39	12 7	– broad, medium.	7·7	6·1	79·2
13	B. Woodhouse ...	21	Fisherman	V.P. Flamborough	5 7½	37	10 1	– broad, low.	7·5	6·0	80·0
14	J. Cross	54	Fisherman	P. Flamborough	5 5	37½	10 0	– broad, round.	7·1	6·0	84·5
15	R. Cross	19	Fisherman	V.P. Flamborough	5 7	38	11 6	– broad, medium.	7·6	6·1	80·2
16	W. Mainprize ...	34	Fisherman	P. Flamborough	5 10	37½	11 0	– broad, medium.	7·4	5·9	79·7
17	W. Major... ...	38	Fisherman	V.P. Flamborough	5 5½	40	13 5	– broad, round.	7·5	6·3	84·0
18	G. Warcup ...	36	Fisherman	V.P. Flamborough	5 7½	40	11 5	– broad, medium.	7·8	6·2	79·0
19	S. Chadwick ...	22	Fisherman	V.P. Flamborough	5 10½	39	11 10	– broad, medium.	7·9	6·3	79·7
20	J. Mainprize ...	23	Fisherman	V.P. Flamborough	5 7	37	11 4	– broad, medium.	8·0	6·1	76·2
21	G. Salvidge ...	24	Fisherman	P. Flamborough	5 11½	36	11 0	– medium, falling.	7·6	5·7	75·0
22	G. Duke	18	Fisherman	V.P. Flamborough	5 6¾	37	11 0	– broad, medium.	7·6	5·4	71·0
23	G. Stork	32	Fisherman	V.P. Flamborough	5 8½	41	11 11	– broad, medium.	7·6	6.4	84 2
24	T. Fell	43	Fisherman	V.P. Flamborough	5 8½	41	11 4	– broad, high.	7·7	6·3	81·8
25	G. Colley	32	Fisherman	P. Flamborough	5 8	39½	11 10	– broad, medium.	7·6	6·2	81·5
26	T. Woodhouse ...	60	Fisherman	V.P. Flamborough	5 9½	42½	13 2	– broad, medium.	7·7	6·3	81·8
27	J. Duke	48	Fisherman	V.P. Flamborough	5 8¾	42½	13 12	– broad, medium.	7·6	6·4	84·2
28	R. Chadwick ...	59	Fisherman	V.P. Flamborough	5 6	39½	10 4	– medium	7·8	6·0	76·9
29	W. Chadwick ...	27	Fisherman	V.P. Flamborough	5 8	41	13 4	– broad, medium.	7·7	6·3	81·8
30	J. Turnicliff ...	43	Fisherman	P. Flamborough	5 9½	40	11 3	– broad, medium.	7·6	6·0	78·9
31	R. Bayes	29	Fisherman	Flamborough	5 9½	41½	12 1	– broad, medium.	8·0	6·3	78·7
32	T. Turnicliff ...	36	Fisherman	P. Flamborough	5 11½	38½	11 1½	– broad, falling.	7·3	5·6	76·7
33	G. Gibbon ...	32	Fisherman	V.P. Flamborough	5 10½	37½	11 2½	– broad, falling.	8·2	6·4	78·0
34	R. Pockley ...	50	Fisherman	V.P. Flamborough	5 9½	39½	12 0	– broad, medium.	7·6	6·0	78·9
35	T. Traves	18	Bus driver	V.P. Flamborough	5 7¾	37	10 12	– medium, high.	7·4	5·8	78·3
36	J. Bayes	25	Fishmonger	V.P. Flamborough	5 11½	44	15 1	– broad, high.	7·8	6·2	79·5
37	J. Knaggs ...	34	Fisherman	V.P. Flamborough	5 10¼	41	13 6	– broad, medium.	7·4	6·0	81·0
38	Joseph Oldfield ...	76	Fisherman	Flamborough	5 10½	41½	11 8	– broad, high.	8·0	5·8	72·5
39	W. Beilly... ...	43	Fisherman	Flamborough	5 9	41½	13 1½	– broad, medium.	7·6	6·0	79·0
40	George Cross ...	34	Fisherman	V.P. Flamborough	5 11	43	14 9	– broad, medium.	7·8	6·3	80.7
41	T. Lang	63	Fisherman	V.P. Flamborough	5 10½	39½	12 6	– broad, high.	7·5	6·2	82·0
42	M. Bailey... ...	44	Tailor	V.P. Flamborough	5 9	39	12 0	– broad, medium.	7·8	6·0	76·9
43	W. Stork	61	Fisherman	V.P. Flamborough	6 0½	39	14 0	– broad, medium.	8·0	6·3	78·7

ad.										
atest dth.	Cephalic index.	Voice.	Carriage.	Nose.	Eyebrows.	Cheek bones.	Chin.	Hair of head.	Beard.	Eyes.
·9	73·7	deep	erect	straight, prominent	medium	medium	prominent, pointed	black, brown	...	grey
·2	77·5	deep	medium	straight, thick	medium	medium	prominent, pointed	brown	...	grey
·2	80·5	deep	erect	straight	medium	medium	medium	black	black, brown	blue
·4	80·0	deep	erect	straight	straight	medium	beard	black	black, brown	grey
·1	80·2	deep	erect	straight	straight	medium	medium	black	black, brown	dark grey
·8	80·5	deep	erect	hooked pointed	medium	medium	prominent	dark brown	brown	light grey
·0	80·0	deep	medium	straight	arched	medium	medium	black, brown	black, brown	brown
·9	81·9	deep	erect	hooked, long	straight	medium	medium	black	black	grey
·0	79·0	deep	medium	straight	arched	medium	beard	black	black	brown
·8	76·3	deep	medium	straight, thick at point	medium	rather broad	medium	red, brown	red	grey
·2	80·5	deep	medium	straight	straight	rather broad	medium	red, brown	red, brown	light brown
·1	79·2	deep	medium	straight, thick	straight	medium	receding	dark brown	brown	grey
·0	80·0	deep	stooping	straight	arched	medium	prominent	fair	fair	blue
·0	84·5	deep	medium	straight	straight	medium	prominent	formerly brown	formerly brown	blue
·1	80·2	deep	erect	straight	medium	rather broad	medium	dark brown	...	light brown
·9	79·7	deep	medium	hooked	arched	medium	medium	black	black	brown
·3	84·0	deep	stooping	straight	arched	medium	medium	dark brown	red	brown
·2	79·0	deep	medium	straight	arched	rather broad	beard	brown	brown	grey
·3	79·7	deep	erect	straight	straight	medium	medium, pointed	black	...	light brown
·1	76·2	deep	medium	slightly hooked	straight	rather broad	medium	black	black	brown
·7	75·0	deep	erect	hooked, long	straight	narrow	medium	dark brown	...	grey
·4	71·0	deep	erect	straight	straight	rather broad	medium	black	...	brown
.4	84·2	deep	medium	straight	straight	medium	beard	red	red brown	grey
·3	81·8	deep	medium	straight	prominent	medium	beard	black, brown	black, brown	grey
·2	81·5	deep	medium	straight	straight	medium	beard	brown	red	brown
·3	81·8	deep	erect	straight	medium	medium	medium	formerly dark brown	formerly dark brown	grey
·4	84·2	deep	medium	straight	medium	medium	beard	red	red	grey
·0	76·9	deep	medium	slightly hooked	medium	medium	beard	formerly dark brown	formerly dark brown	brown
·3	81·8	deep	medium	straight	prominent, straight	medium	beard	brown	red	grey
·0	78·0	deep	erect	slightly hooked	straight	medium	medium	brown	light brown	grey
·3	78·7	deep	erect	straight	arched	medium	medium	black brown	red	brown
·6	76·7	deep	medium	slightly hooked	medium	medium	medium	light brown	red	blue
·4	78·0	deep	stooping	straight	medium	medium	receding	black	black	grey
·0	78·9	deep	medium	straight	straight	medium	receding	formerly brown	formerly brown	brown
·8	78·3	medium	medium	straight	straight	medium	medium	brown	...	blue
·2	79·5	deep	stooping	straight	slightly arched	medium	medium	fair	fair	grey
·0	81·0	deep	medium	slightly turned up	medium	medium	beard	brown	brown	grey
·8	72·5	deep	medium	straight, long	medium	medium	medium	formerly black	...	brown
·0	79·0	deep	erect	straight	prominent	medium	beard	light brown	red	grey
·3	80.7	deep	medium	slightly turned up	prominent	rather broad	medium	brown	fair	brown
·2	82·6	deep	medium	hooked	prominent	medium	medium	formerly dark brown	...	grey
·0	76·9	deep	erect	straight	prominent	medium	medium	light brown	red, brown	grey
·3	78·7	medium	erect	hooked	prominent	medium	beard	formerly fair	formerly fair	grey

38	Joseph Oldfield ...	76	Fisherman	Flamborough	5 10½	41½	11 8	– medium, broad, high.	8·0	5·8	72·5	d
39	W. Beilly... ...	43	Fisherman	Flamborough	5 9	41½	13 1½	– broad, medium.	7·6	6·0	79·0	d
40	George Cross ...	34	Fisherman	V.P. Flamborough	5 11	43	14 9	– broad, medium.	7·8	6·3	80.7	d
41	T. Lang	63	Fisherman	V.P. Flamborough	5 10½	39½	12 6	– broad, high.	7·5	6·2	82·6	d
42	M. Bailey... ...	44	Tailor	V.P. Flamborough	5 9	39	12 0	– broad, medium.	7·8	6·0	76·9	d
43	W. Stork	61	Fisherman	V.P. Flamborough	6 0½	39	14 0	– broad, medium.	8·0	6·3	78·7	me
44	George Duke ...	66	Fisherman	V.P. Flamborough	6 1¾	37½	12 1½	– broad, medium.	7·6	6·3	82·9	d
45	Ben Cross ...	26	Fisherman	V.P. Flamborough	5 11¾	40½	13 8	– broad, high.	7·8	6·2	79·0	d
46	John Major ...	31	Fisherman	Flamborough	5 7½	36	11 0½	– broad, medium.	7·4	6·0	81·0	d
47	Leonard Main-prize	33	Fisherman	V.P. Flamborough	5 8½	38	11 5	– broad, medium.	7·7	6·1	79·2	d
48	W. Gibbon ...	43	Fisherman	V.P. Flamborough	5 6¾	38	11 8½	– broad, medium.	7·6	6·2	81·5	d
49	G. Lang	42	Fisherman	V.P. Flamborough	5 6¾	40	12 12	– broad, high.	8·0	6·3	78·7	d
50	G. Emerson ...	31	Fisherman	V.P. Flamborough	5 7¼	36	10 11	– broad, medium.	7·5	5·9	78·6	me
51	John F. Bayes ...	27	Fishmonger	P. Flamborough	5 10½	39½	11 12	– broad, medium.	8·0	6·3	78·7	d
52	Bolton Duke ...	44	Fishmonger	Flamborough	5 10	36	10 8	– broad, high.	7·6	6·3	82·8	ra h
53	Mat. Oldfield ...	38	Fisherman	Flamborough	5 11¾	37	11 11	– broad, high.	7·7	5·8	75·3	d
54	Joseph Salvidge...	55	Fishmonger	V.P. Flamborough	5 7	37	11 9	– broad, medium.	7·7	6·2	80·5	d
55	James Traves ...	45	Landlord "Dog and Duck Inn"	V.P. Flamborough	5 7	36	12 7	– broad, medium.	7·7	6·2	80·5	d
56	Warcup Traves ...	43	Blacksmith	V.P. Flamborough	5 7	37	10 10	– medium, high.	8·1	6·4	79·0	d
57	John Pockley ...	55	Fisherman	V.P. Flamborough	5 8	38½	11 0	– broad, medium.	7·7	6·3	81·8	d
58	James Wood-house	42	Postmaster	V.P. Flamborough	5 9½	39	12 12	– broad, high.	8·3	6·4	77·1	d
59	George Stork ...	67	Fisherman	V.P. Flamborough	6 2½	43	17 6½	– very broad, high.	8·1	6·4	79·0	d
60	John Bailey ...	69	Tailor	P. Flamborough	5 5	38½	13 2	– broad, medium.	7·8	6·1	78·2	d
61	John Pockley ...	40	Fisherman	V.P. Flamborough	6 1	41½	13 1	– broad, high.	7·8	6·2	79·0	d
62	Peter Jameson ...	65	Fisherman	Flamborough	5 7½	40	11 5	– broad, medium.	7·6	6·0	79·0	d
63	Joseph Oldfield ...	27	Fisherman	V.P. Flamborough	5 9¾	37	11 0	– medium medium.	8·1	6·1	75·3	d
64	Robson Jeffreson	63	Fisherman	Flamborough	5 8¾	46½	16 0	– broad, medium.	7·7	6·1	79·2	d
65	Carter Wood-house	67	Wheelwright	Flamborough	5 7½	38½	10 11	– medium medium.	7·5	6·1	81·3	d
66	George Wood-house	30	Fishmonger	Flamborough	5 4½	39	10 4	– medium low.	7·5	5·8	77·3	d
67	George Jameson...	27	Fisherman	P. Flamborough	5 4½	38½	10 4	– medium medium.	7·6	6·0	79·0	d
68	Wilson Naggs ...	43	Fisherman	Flamborough	5 7¾	37	10 10	– broad, high.	7·5	5·9	78·6	d
69	Robert Pockley ...	46	Fisherman	Flamborough	5 6	39½	12 3	– broad, medium.	7·6	6·3	82·9	d
70	John Colley ...	66	Fisherman	P. Flamborough	5 5¾	40½	13 12	– broad, high.	7·4	6·1	82·4	d
71	Richard Tyndale	32	Ag. labourer	Flamborough	5 9½	39	11 0	– broad, medium.	7·4	5·7	77·0	d
72	T. T. Woodhouse	34	Ag. labourer	P. Flamborough	5 7¾	37½	10 13	– broad, round.	7·8	6·3	80·7	d
73	Jordan Bilton ...	40	Ag. labourer	P. Flamborough	5 5½	37½	11 5	– broad, medium.	8·2	6·4	78·0	d
	Totals ...	3,009			420·5	2,868	879 8½	...	561·5	4,458	56,947	
	Average ...	41·2			5 9	39·28	12 0½	...	7·69	6·10	78·0	

* Face rather triangular. † Mother from Filey. ‡ Very long face and low head.

72·5	deep	medium	turned up straight, long	medium	medium	medium	formerly black	...	brown
79·0	deep	erect	straight	prominent	medium	beard	light brown	red	grey
80.7	deep	medium	slightly turned up	[prominent	rather broad	medium	brown	fair	brown
82·6	deep	medium	hooked	prominent	medium	medium	formerly dark brown	...	grey
76·9	deep	erect	straight	prominent	medium	medium	light brown	red, brown	grey
78·7	medium	erect	hooked	prominent	medium	beard	formerly fair	formerly fair	grey
82·9	deep	erect	hooked	medium	rather prominent	prominent	black	black	brown
79·0	deep	stooping	straight	arched	medium	medium	brown	brown	brown*
81·0	deep	erect	straight	medium	medium	medium	brown	black	grey†
79·2	deep	medium	straight	prominent	medium	medium	brown	dark brown	brown
81·5	deep	medium	straight	medium	medium	medium	black	black	green
78·7	deep	stooping	straight	medium	medium	medium	fair	red	light brown‡
78·6	medium	erect	straight, slightly hooked in centre	medium	medium	medium	brown	red	grey
78·7	deep	erect	straight	prominent	medium	medium	dark brown	dark brown	brown
82·8	rather high	erect	rather turned-up	straight, prominent	medium	medium	dark brown	dark brown	green
75·3	deep	erect	straight	medium	medium	medium	black	black	grey§
80·5	deep	stooping	straight	arched	medium	medium	black, brown	red	grey
80·5	deep	medium	straight	arched	medium	beard	red	red	blue
79·0	deep	medium	straight	arched	medium	receding	red	red	blue‖
81·8	deep	medium	slightly hooked	prominent	medium	beard	black	black	brown
77·1	deep	erect	straight	prominent	medium	beard	dark brown	red, brown	grey
79·0	deep	erect	slightly hooked	medium	medium	medium	formerly fair	formerly fair	grey
78·2	deep	medium	straight	medium	medium	prominent	formerly light brown	formerly light brown	grey
79·0	deep	erect	straight	straight, prominent	medium	beard	black	black	brown
79·0	deep	medium	hooked	prominent	medium	medium	black	black	grey
75·3	deep	stooping	straight	prominent	medium	medium	black	dark brown	brown
79·2	deep	medium	straight	arched	medium	medium	red	red	blue
81·3	deep	medium	straight	straight	medium	medium	formerly brown	formerly brown	blue
77·3	deep	medium	straight	medium	medium	beard	dark brown	dark brown	brown
79·0	deep	medium	straight	medium	medium	medium	dark brown	dark brown	brown
78·6	deep	medium	straight	medium	medium	medium	black	black	brown
82·9	deep	erect	straight	medium	prominent	beard	dark brown	dark brown	grey
82·4	deep	medium	hooked	prominent	medium	prominent	formerly light brown	red	blue
77·0	deep	erect	straight	prominent	medium	rather prominent	black	brown	grey
80·7	deep	medium	straight	medium	medium	beard	dark brown	dark brown	grey
78·0	deep	erect	straight	medium	medium	beard	fair	fair	grey
56,947	...	...	...	...	...	...	...	...	...
78·0	...	...	...	...	...	...	...	...	...

low head. § Mother from neighbourhood. ‖ Brother of the last.

FLAMBOROUGH WOMEN, OCTOBER, 1879.

MEASURED BY MAJOR-GENERAL PITT-RIVERS, F.R.S., P.A.I.

No.	Name.	Age.	Profession or Calling.	Race.	Height.	Chest.	Weight.	Shoulders.	Head.			Hair.	Eyes.
									Length	Breadth.	Cephalic Index.		
					Ft. in.	Ft. in.	St. lb.						
1	Anne Nicholson ...	59	Fishwoman	P. Flamborough	5 1	3 5	13 10	broad high	7·3	5·7	73·0	Black	Blue
2	Mary Cross ...	49	Fishwoman	V.P. Flamborough	5 2	3 5	11 0½	broad high	7·3	5·8	79·4	Black	Brown
3	Mary Chadwick ...	55	Fishwoman	P. Flamborough	5 6½	3 2	12 11½	high	7·4	5·9	79·7	Black	Grey
4	Jane Woodhouse ...	48	Fishwoman	Flamborough	5 5½	3 1½	12 0	medium	7·5	5·8	77·3	Light Brown	Blue
5	Anne Oldfield ...	38	Fishwoman	V.P. Flamborough	5 5¾	3 2	12 1	broad	7·4	5·8	78·3	Dark Brown	Dark Blue
6	Anne Chadwick ...	53	Fishwoman	Flamborough	5 2	2 11	10 8	broad	7·1	5·5	77·4	Red Brown	Grey
7	Mary Ann Traver ...	35	Fishwoman	V.P. Flamborough	5 7½	3 1	11 8	broad	7·6	6·0	79·0	Black	Brown
8	Anne Beilby ...	42	Fishwoman	V.P. Flamborough	5 8½	2 9	10 8½	medium	7·3	6·0	82·2	Black	Brown
9	Anne Gwin ...	66	Fishwoman	V.P. Flamborough	5 6	3 0	10 8	medium	7·5	5·9	78·6	Dark Brown	Blue
10	Mary White ...	34	Wife of Labourer.	V.P. Flamborough	5 6¾	3 1	12 13	broad	7·4	6·1	82·4	Black	Brown
11	Sarah Colley ...	20	Fishwoman	V.P. Flamborough	5 2¼	2 9½	9 9½	...	7·3	5·5	75·4	Red	Brown
12	Mary Cross ...	20	Fishwoman	V.P. Flamborough	5 4	2 10	10 10½	...	7·8	6 0	77·0	Brown	Grey
13	Anne Naggs ...	27	Fishwoman	V.P. Flamborough	5 3¼	3 2	12 12½	...	7·8	6·1	78·2	Black	Brown
14	Anne Edison ...	67	Wife of Agricultural Labourer.	V.P. Flamborough	5 3	3 3	13 0	...	7·4	5·7	77·0	Formerly Black	Blue
15	Anne Major ...	33	Fishwoman	V.P. Flamborough	5 1	3 1	11 0	...	7·2	5·7	79·1	Black	Dark Brown
16	F. Sawden ...	41	Wife of a Labourer	V.P. Flamborough	5 0	3 1	11 3½	...	7·1	6·0	84·5	Dark Brown	Blue
17	M. Anne Cross ...	30	Fishwoman	V.P. Flamborough	5 3¼	3 1	12 3½	...	7·3	6·1	83·6	Dark Brown	Grey
	Totals	714	...	...	90 9	52 5	198·10	...	...	99·6	134·70	...	...
	Averages	42	...	...	5 4	3 1	11·9½	...	...	5·85	79·2	...	...

In the absence of the author, the Director read the following paper:—

ACCOUNT *of the* DISCOVERY *of* SIX ANCIENT DWELLINGS, *found under and near to* BRITISH BARROWS *on the* YORKSHIRE WOLDS. By J. R. MORTIMER, Esq., M.A.I.

[WITH PLATE XL.]

IN this paper I purpose giving a description of six ancient dwellings found under and near to ancient British barrows on the Yorkshire estates of Lord Halifax and Sir Tatton Sykes, Bart., whose courteous permission to explore was obtained through the kindness of Christopher Sykes, Esq., M.P.

Dwelling No. 1 is in connection with barrow No. 110, group 5, of my openings. This barrow is situated on the brow of the south-western edge of the chalk wolds, near to, and overlooking the village of Hanging Grimston.

At the time of exploration (March 28th, 1868), it measured 78 feet east and west by 50 feet north and south, with a central elevation of 3 feet. It was found, in excavating, to have had a deep and wide trench on the north and south sides the whole of its length, but not round the ends; from the material of the trench this barrow, which is of the true long type, had in the main been formed.

The dwelling, as shown on the plan (fig. 1, Plate XL), is situated at the eastern end of the barrow, and is somewhat peculiar in form. Its depth from the base of the mound was 6½ feet, with a floor surface of 9½ feet by 7½ feet, and it was entered by two inclining passages.

The southern one was found to be 24 feet long, 4¾ feet wide at the inner extremity, and 3 feet wide at the outer extremity, and reaching nearly to the side trench of the barrow. The northern one was 27 feet long, 4½ feet wide at the inner extremity, and 4 feet wide at the outer extremity, and was clearly shown to be cut by the northern side trench of the barrow. This feature, being considered a key to the relative ages of the barrow and the cave-dwelling was carefully examined, and it left no doubt on our mind that in this case the construction of the cave-dwelling preceded the excavation of the trench, and consequently was older than the barrow which consisted in the main of the material cast from the trenches.

The filled-in dwelling contained soily matter irregularly mixed with pieces of chalk. At the north end, near the east side, at a depth of 2½ feet from the base of the mound, were

three heaps of the upper and lower jaws of the pig—chiefly of young animals; and at the south end, on the same level, was another heap. These mysterious deposits consisted almost entirely of the upper and lower jaws of at least twenty pigs; while at a depth of 3 feet towards the west side (marked B on the plan) lay the greater portion of a dish-shaped urn (fig. 3, Plate XL), accompanied by bits of burnt wood and a considerable trace of decayed matter, and on the same level, near the south side, lay the femur of a medium-sized person, and close below it was a vertebra of the stag or ox.

In various places, from 3 to 5 feet down, we took the horn of the roebuck, the tang from the antler of the red-deer, and portions of the leg bones and scapula of the same animal, and several teeth of the pig.

It was noticed that many streaks of burnt and decayed wood ran obliquely, and some almost vertically down into the cave, reaching in places to near the bottom. On the bottom rested a dark stratum containing small pieces of burnt wood, and on the west side lay a considerable quantity of decayed matter from which we took the rib of an animal about the size of a rabbit, and clearly observed strips of bone in the last state of decay.

The passages leading from the cave were charged with a like mixture of soil and chalk containing bones and fragments of pot, and showing oblique lines of burnt and black matter similar to those in the cave.

This cave-dwelling must have been covered with a horizontal roof upon which had been heaped soil and chalk, and was probably thatched with heather, in every way similar (except in having two entrance passages), to "Kemp Howe," Cowlam, which I have described in the "Journal of the Anthropological Institute," vol. ix, No. IV.

Its connection with one end of the barrow is also very similar. There is likewise strong evidence that it was destroyed in a similar way, viz., by fire. Such a catastrophe would account for the different lines of black matter by the burning roof giving way and falling in, bringing with it the fragments of pottery, and the numerous animal bones which may from time to time, after meals, have been thrown on and around the low roof of this cave-domicile, even including, probably, the human thigh bone.

In the body of the barrow, about 5 feet from the south-west corner of the cave, at a point (A on fig. 1, Plate XL), were portions of a second dish-shaped urn, much crushed, and lying a few inches above the base of the mound. Ten feet west of the edge of the cave were many fragments of a third dish-formed urn

marked "C," and 3 feet north-north-west of the last lay portions of a fourth dish-shaped urn marked "D" on its side, and within reach of the plough, consequently much damaged. Close under this urn were part of a jaw with teeth of a pig, and at a little distance a portion of the leg bone of the same animal. Under the two last-named urns was an oblong grave pointing north and south 2½ feet deep, and measuring at the bottom 4½ feet by 2 feet. Near the centre of the grave and about half its depth, stood on end the scapula of the pig. There was a considerable quantity of burnt wood from top to bottom, and in the floor of the grave at the south end was a small dish-shaped hole filled entirely with burnt wood, in which we found one small piece of bone, but no relic. All the urns are of a like shallow round-bottomed, dish-shaped type, ranging from 12¼ inches to 13 inches in diameter, and from 5¾ inches to 6 inches in depth. I wish to mention that the potsherds from the cave-dwellings of "Kemp Howe," Cowlam (described in the "Journal of the Anthropological Institute"), belonged to vessels of an almost identical type to those I have just described. I also wish to mention that this form of pottery is rarely found whole in the barrows of this neighbourhood, and that they were probably domestic vessels, and not funeral urns, though some of those I have described in this paper must have served a double purpose, by having been also used as food vases or cinerary urns. This form of pottery is of comparatively rare occurrence. One from West Heslerton Wold, of the same type, and nearly of the same dimensions and colour, is figured by Canon Greenwell in "British Barrows," page 107. At page 143, he describes as domestic pottery, and as having been found in fragments along the bottom of a trench sunk into the chalk rock, and extending 16 feet. This is exceedingly interesting, as these fragments seem to have been found under very similar conditions to some of those I have described.

Dwelling No. 2 is situated close to the south side of the Malton and Driffield Railway, about three miles west of Driffield, and about 30 feet from the eastern margin of tumulus "C. 34," in which were cremated interments. The following is an extract from my note book:—"November, 1871. In testing the ground at the outskirts of the barrow for secondary burials, it was observed that the gravelly sub-soil showed strong traces of fire; and that the gravel in this abnormal condition filled a circular hole. We first proceeded to cut away or empty a vertical half of it, and as we descended, we noticed in the section, lines of burnt wood running from the top towards the bottom in various directions and at different angles. Much dark matter was noticed round the sides, and the gravel there as well as that near

the lines of charcoal previously mentioned was burnt a deep red." Not until after we had completely emptied this somewhat funnel-shaped hole, with its north and south entrance passages, were we quite certain that it had been an underground habitation. Unlike the two previously mentioned dwellings, no fragment of bone or pot was found in it. It greatly resembles the one on Hanging Grimston Wold, having the entrance passages also on the north and south sides, and about the same dimensions, 24 feet long. Its depth was 7 feet 4 inches, diameter at the bottom 5½ feet, and at the top 9½ feet, allowing the sides all round to slope outwards, a very necessary precaution when excavated in loose gravel.

The dark matter on the sides of the interior of the cave and its passages, seemed to suggest that they had been covered with something to exclude the damp and increase its comfort. Whilst the oblique lines of burnt wood, observed in the midst of the burnt gravel filling the cave, indicated that this cave-domicile, like the one on Hanging Grimston Wold, and the one on Cowlam, previously named, had also been destroyed by fire, causing in this case, also, the horizontal beams to give way, and fall into the cave, along with the gravel that covered them. Their undoubted destruction by fire must be supposed to have been more than accidental. Were they destroyed by an enemy, or were they intentionally burnt at the death of their owners, whose bodies were also burnt and interred in the mounds adjoining these dwellings? The latter surmise seems the most reasonable.

Dwelling No. 3 is the remnant of a somewhat simpler kind than the preceding ones. It is situated about 150 feet from the last described dwelling, and on the western or opposite side of Barrow "C. 34." It was a circular excavation in the gravelly sub-soil; measuring 7 feet in diameter and 3½ feet deep. Nothing was found in it, and no trace of fire was anywhere visible.

Dwelling No. 4 resembles the last. It is situated 100 yards west of tumulus "C. 55," in the second field from the south side of the Malton and Driffield Railway; and about one mile east of Wetwang. A very slight rise on the surface led to its discovery. After being carefully cleared out, it measured at the bottom 8 feet 8 inches north and south, and 5½ feet east and west, and the sides all round sloped outwards. Its depth was 4¾ feet, one third of which passed through soily matter, the other portion through rubbly chalk. Rather to the west of the centre of the floor, which consisted of the even surface of an undisturbed stratum of the chalk rock, was the residue of a fire marking the hearth of this ancient pit dwelling. Strewed

round the fireplace were many splinters of animal bones, those of the red deer being most numerous. About 10 inches above the floor were the lower ends of two large humeri of *Bos primigenius* (Wells) measuring $4\frac{6}{10}$ inches across the joint. Unlike the horizontal roofing of the gallery caves, these pit circles were most probably roofed with the branches of trees, placed with their ends all round the sides, meeting together at the top over the centre of the pit; and thatched with grass or heather.

Dwelling No. 5 is of an entirely different type from those previously described. Its remains were completely buried under barrow "23," which is situated on Bishop Wilton Wold, about two miles east of Bishop Wilton Village. During the end of May and the beginning of June, 1868, we carefully turned over nearly the whole of this barrow. On approaching within about 14 feet of the west of the centre, we observed stake and post holes running down into the ground under the barrow; in each of these was placed a small upright stake to assist us in making out their arrangement, which was soon discovered to be in order, and tending towards a circle. On nearing the centre of the barrow we discovered an oval grave (fig. 4, Plate XL) cut 4 feet into the rock, containing the flexed human remains of a large male; in front of his face lay a crushed food-vase, and close to his left shoulder was a perforated axe-hammer of grey stone, with the decayed matter of the handle lying over the upper part of his chest. As the turning over of the barrow proceeded, the post holes were found at about regular distances, forming two circles, one within the other. These two circles measured respectively $21\frac{1}{2}$ feet and 28 feet in diameter. The base of the mound within these circles consisted in the main of clayey matter brought from a distance, which, near the centre, attained to a thickness of 15 inches. The plan on fig. 4, Plate XL, gives the number and arrangement of the stake and post holes, and shows the inner and outer circles to approach each other much nearer on the east than on the west side. Four post holes are also shown placed outside the circle. The stake and post holes varied from 3 inches to 15 inches in diameter, and were found to reach from 1 to 2 feet below the base of the barrow, and in some cases from 2 to 3 feet upwards into the body of the mound. Plaster casts were taken from several of the smaller holes, and though the bottoms of these holes were partly filled with earthy matter, left by the percolation of water during long ages, we were able to make out that some had been pointed and driven into the ground, whilst the larger, and even some of the smaller ones, had been placed in holes dug into the ground, with their thick ends downwards.

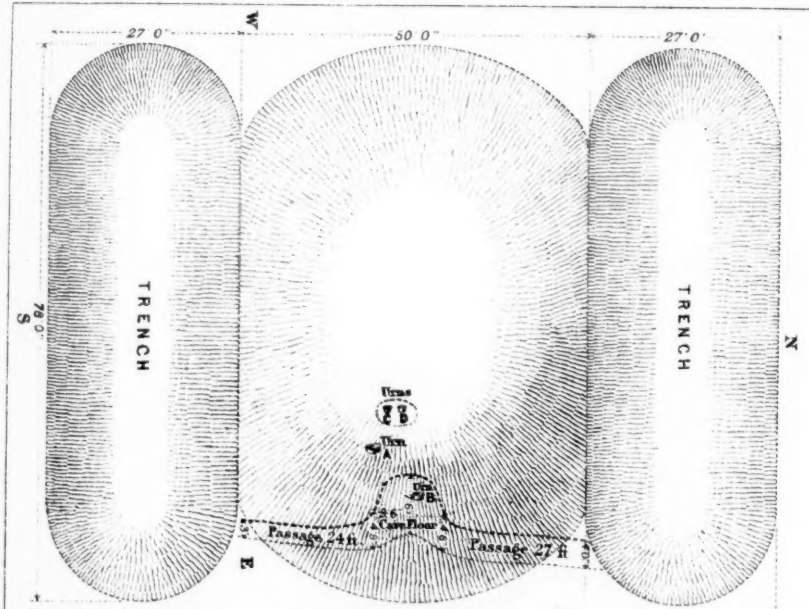
It may now be asked, what was the purpose of the erection of these posts? Those forming the double ring seem to clearly indicate the arrangement of the upright posts of the wattled walls of a circular house bedaubed or plastered with clay, and probably having a conical roof. What purpose the space between the two walls served is uncertain, but it might have been used for storing grain (which will be shown were then grown in the neighbourhood) and other provisions for winter consumption, at a time when, probably, a man's dwelling was the only building he possessed for all purposes. Neither can we be certain as to the use of the four posts outside the circles; they seem too near the outer circle to be the remains of any useful enclosure; but they might well have served as strong pegs by which the exposed roof of a dwelling was stayed and kept in position by ropes made of some fibrous material, which, from numerous impressions observed on cinerary urns and food vases, we know the ancient Britons possessed. Along this breezy high-land some such special support to the roof of such a building must have been indispensable. It seems probable that at the death of its owner a grave was dug in the floor of the dwelling, the walls and roof pushed inwards, and over them the barrow was afterwards reared. Nothing would be more natural to early man than that he should wish to occupy in death the place of his residence or abode during life.

Dwelling No. 6 is about two miles to the east of the last, and stood on ground now covered by tumulus No. 41, which at the time of opening measured 90 feet in diameter and 7½ feet in elevation. Under this barrow was a circular bed of blue muddy-looking clay 15 feet in diameter and about 15 inches thick in the centre, and thinning down outwards. Nearly all round the margin we found vertical stake holes, from 3 to 6 inches in diameter, reaching from 12 to 18 inches into the ground under the barrow; and in three places 5 feet upwards into the body of the mound. Preserved in this circular bed of impervious clay were many bits of small branches of the oak, ash, maple, and other trees, lying horizontally; while many other pieces had left their impressions in and beneath the clay. Probably these were the remains of the wattled sides of the hut which had been covered with the circular bed of clay, in which they were found preserved. One piece of oak about 2 feet long and 2½ inches thick had a cross incision, made seemingly by a metal saw, extending 1½ inch into it; and its thick end shows two oblique cuts produced by having been cut from its roots, with a tolerably keen-edged tool, probably of metal. We also took from this bed of clay many greatly decayed portions of the horns of the red deer. In testing the ground under this clay,

no grave could be found; but round its circumference the soil and rock, to a depth of 2 to 3 feet, and from 18 inches to 2 feet in width, was found to be stained black, as if from the droppings of the eave of a circular hut, which at times were discoloured with the decayed thatch of the roof. And what is very probable, this thatch may have been, even in those early times, the straw of wheat, as I possess the carbonized grains of this cereal, from the primary interment of an undoubted British barrow. A few feet from this dwelling, on the side towards the rising sun, was a grave cut into the chalk rock, containing the flexed body of a young and small person, accompanied by a delicately formed flint knife, lying close to the right arm, and a large and finely ornamented food vase, standing by the right side of the head. Though in this case the interment had not been made in the floor of the dwelling, but close to it, the dwelling had been crushed down at the time of interment as in the previous case, and both carefully covered with the barrow. The two have been alike protected and preserved to our time, and show there is but a step between the habitation of the living and the house of the dead.

Description of Plate XL.

Fig. 1. Plan of tumulus No. 110, with side trenches showing position of the dwelling No. 1.
Fig. 2. Section of the cave-dwelling in tumulus No. 110.
Fig. 3. Vessel of pottery found in the dwelling No. 1, at the spot marked B in fig. 1.
Fig. 4. Plan of hut-circle, with interment, under tumulus No. 23.

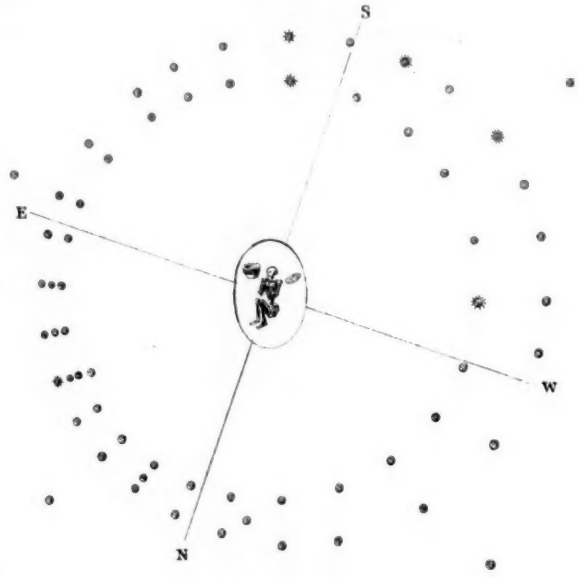


PLAN OF TUMULUS 110, WITH SIDE TRENCHES.
Fig 1.

SECTION OF TRENCH.

URN B.
Fig 3.

SECTION OF CAVE DWELLING IN TUMULUS 110.
Fig 2.



Diameter of Inner Circle 21½ feet.
" " Outer Circle 38 feet.

HUT CIRCLE UNDER TUMULUS 23.
Fig. 4.

J.P. & W.R. Emslie, 16th London

ANNUAL GENERAL MEETING.

JANUARY 24TH, 1882.

MAJOR-GENERAL PITT RIVERS, F.R.S., *President, in the Chair.*

The notice convening the meeting was read.

The minutes of the last Anniversary Meeting were read and confirmed.

The Treasurer's Financial Statement for the year ended 31st December, 1881, was read and adopted on the motion of Mr. HYDE CLARKE, seconded by Mr. BOUVERIE PUSEY.

Mr. HYDE CLARKE, in moving the adoption of the Report, said that the favourable nature of the Treasurer's statement was greatly due to the liberal support which the Institute had received in consequence of the powerful appeal which had been made in its favour by Professor Flower at the British Association at York. Their old friend, Dr. Muirhead, of Cambuslang, a zealous anthropologist, at once gave a cheque for the handsome sum of one hundred pounds, which had been applied, in conformity with his desire, to the advancement of the Journal. At the same time donations had been given by Mr. Herbert Spencer, Mrs. Rose Mary Crawshay, and Mr. Clerk. Moreover, several gentlemen had also enrolled themselves as Members of the Institute, in response to Professor Flower's appeal.

ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

Receipts and Payments for the Year ending 31st December, 1881.

RECEIPTS.

	£	s.	d.	£	s.	d.
BALANCES, January 1st, 1880:						
At Bankers'	99	17	6			
In Office	3	1	6½			
Due for bookcases and publications sold	7	1	6			
				110	0	6½
SUBSCRIPTIONS:						
Paid to Robarts and Co.	64	1	0			
" " due 1880	2	2	0			
" Collector	357	0	0			
" " Life Compositions	63	0	0			
" " due 1880	29	8	0			
" " in advance	28	7	0			
				543	18	0
DONATIONS				113	0	0
SALE OF ETHNOLOGICAL OBJECTS				50	0	0
SALE OF PUBLICATIONS:						
Messrs. Trübner and Co.	69	17	5			
Messrs. Longmans and Co.	1	6	2			
Office:						
Journals	10	11	0			
Other Publications	5	14	3			
				87	8	10

PAYMENTS.

	£	s.	d.	£	s.	d.
RENT, one year to September, 1881				130	0	0
PRINTING:						
Journal, Nos. 32, 33, 34	146	17	5			
Miscellaneous	33	6	6			
				180	3	11
LITHOGRAPHY, &c.				46	17	8
SALARIES AND COLLECTOR'S COMMISSION				168	10	5
POSTAGE AND STAMPS:						
Journal	14	5	9			
Letters and Post Cards	15	12	1			
Book Parcels and Circulars	1	16	3			
				31	14	1
ADVERTISING				4	6	3
PURCHASE OF BOOKS FOR LIBRARY				14	3	0
OFFICE:						
Stationery and Books	16	0	4			
Receipt Stamps, &c.	2	4	1			
Book Binding	1	17	11			
Insurance	0	18	0			
Carriage of Parcels	4	1	10½			
Carpenter	20	7	0			
Miscellaneous	2	13	2			
				48	2	4½

DIVIDENDS ON INVESTMENTS:						
Half year on £1,060 13*s.*, 3½ Per Cent. Stock			17	15	2	
„ „ £1,060 1*s.* 10*d.* „ „			18	0	0	
						35 15 2
						£940 2 6½

Audited and found correct, January 19th, 1882.

(Signed) GEORGE M. ATKINSON.
M. J. WALHOUSE.

HOUSE:						
Ayres, gratuity for 1880			15	0	0	
„ coals and lights			4	10	6	
„ assistance, &c.			2	18	9	
„ refreshments			21	0	0	
						43 9 3
BALANCES:						
Purchase of £19 8*s.* 10*d.* 3½ Per Cent. Stock						21 0 0
At Bankers'			250	17	8	
In Office			0	17	11	
						251 15 7
						£940 2 6½

APPROXIMATE.

LIABILITIES.	£	*s.*	*d.*
Printing	70	0	0
House	27	0	0
Lithography	10	0	0
Rent	32	10	0
	£139	10	0

ASSETS.	£	*s.*	*d.*	£	*s.*	*d.*
Balance in Bank, 1st January	250	17	8			
„ „ Office	0	17	11			
				251	15	7
Subscriptions in arrear				372	15	0
£1,060 1*s.* 10*d.*, Metropolitan Consolidated Stock at 106				1,123	14	0
Estimated value of Stock				2,000	0	0
				£3,748	4	7

Treasurer's Report.

In consequence of Professor Flower's energetic appeal for the support of the Institute at the York meeting of the British Association, £113 was received as donations. This sum was made up as follows: Dr. Muirhead, £100; Herbert Spencer, Esq., F.R.S., £5; Mrs. R. M. Crawshay, £5; and the late W. H. Clerk, Esq., £3.

We have had three life compounders, and of their compositions £21 has been invested, and another £21 is to be invested at an early opportunity.

There is a falling off in the amount received by the sale of our publications, but that may be partly due to our Journals having been unavoidably rather late in publication, and we hope that this year that will be rectified. The dividends on the money invested is £1 0*s.* 8*d.* more than the previous year. £50 was received by the sale of Ethnological objects, which sum will be appropriated to the library; we have purchased a few volumes, and £36 is still available for that purpose. Our expenses have been about £40 less. In consequence of the printers and lithographers not having sent in their accounts for the last Journal until a few days ago, they do not appear in the balance sheet. Our balance in hand is £251 15*s.* 7*d.*, from which we must therefore deduct £67 3*s.* 10*d.*, the amount of the printers' and lithographers' bill, and £21 to be invested, which will leave an available balance in our favour of £184 11*s.* 9*d.* In addition to this £114 9*s.* is owing for arrears of subscriptions for the past two years. The present value of our £1,060 1*s.* 10*d.* Metropolitan 3½ per Cents. is £1,123 13*s.* 11*d.*

(Signed) F. G. H. Price.

The President declared the ballot open, and Mr. Holt and Mr. Killick were appointed scrutineers.

Mr. F. W. Rudler, Director, read the following report:—

Report of the Council of the Anthropological Institute of Great Britain and Ireland for 1881.

During the past year the Institute has held fourteen ordinary meetings, in addition to the Anniversary Meeting. At the ordinary meetings the following communications were read:

1. "On Head Measurements." By F. F. Tuckett, Esq.
2. "The Stone Age in South Africa." By W. D. Gooch, Esq.
3. "Notes on two Stone Circles in Shropshire." By A. L. Lewis, Esq.
4. "Surgery and Superstition in Neolithic Times." By Miss A. W. Buckland.
5. "Remarks on Arrow-poisons prepared by some Tribes of North American Indians." By W. J. Hoffman, Esq., M.D.
6. "The Gauchos of San Jorge, Central Uruguay." By David Christison, Esq., M.D.
7. "Note on Assam Dwellings." By S. E. Peal, Esq.
8. "A Short Account of the Wild Tribes inhabiting the so-called Naga Hills on our North-Eastern Frontier of India," Part I. By Lieut.-Colonel R. G. Woodthorpe, R.E.
9. "On Artificially Deformed Skulls from Mallakolo." By Prof. W. H. Flower, F.R.S.
10. "The Ethnological Relations of the Gypsies." By Joseph Lucas, Esq.
11. "Remarks on some Archaic Structures in Somersetshire and Dorsetshire." By A. L. Lewis, Esq.
12. "On a New Instrument for determining the Facial Angle." By G. M. Atkinson, Esq.
13. "Thomas of Aquinum and Anthropology." By the Rev. W. S. Caiger, B.A.
14. "On some Naga Skulls." By Professor G. Dancer Thane.
15. "On the Wild Tribes of the Naga Hills," Part II. By Lieut.-Col. R. G. Woodthorpe, R.E.
16. "On some Bone Necklaces from the Andaman Islands." By Allen Thomson, Esq., M.D., F.R.S.
17. "On the Arts of the Andamanese and Nicobarese." By E. H. Man, Esq.
18. "On the discovery of Flint Implements in the gravel of the Nile Valley, near Thebes." By Major-General A. Pitt Rivers, F.R.S., *President*.
19. "On the Human Fossil at Nice." By Alfred Tylor, Esq., F.G.S.
20. "On Sepulchral Remains at Rathdown, Co. Wicklow." By Gerrard A. Kinahan, Esq.
21. "Notes on some Excavations made in Tumuli, near Copiapó, Chili, in June, 1880." By J. H. Madge, Esq.
22. "On some Stone Implements from British Guiana." By F. E. im Thurn, Esq.
23. "The Laws affecting the relations between Civilized and Savage Life, as bearing upon the dealings of Colonists with Aborigines." By the Right Hon. Sir H. Bartle Frere, Bart., G.C.B., G.C.S.I., F.R.S.
24. "On the Animism of the Indians of British Guiana." By E. F. im Thurn, Esq.
25. "Notes on the Asiatic relations of Polynesian Culture." By E. B. Tylor, Esq., D.C.L., F.R.S.
26. "Notes on the affinity of the Melanesian, Malay, and Polynesian Languages." By the Rev. R. H. Codrington.
27. "Fijian Riddles." By the Rev. Lorimer Fison.
28. "On the Stature of the Inhabitants of Hungary." By Dr. J. Beddoe, F.R.S.
29. "Some Vestiges of Girl Sacrifices, Jar Burial, and Contracted Interments in India and the East." By M. J. Walhouse, Esq., F.R.A.S.
30. "Origin and Primitive Home of the Semites." By G. Bertin, Esq.

It is satisfactory to report that during the year thirty-seven Ordinary Members, one Corresponding Member, and three Honorary Members have been elected.

The former and present state of the Institute with regard to the number of Members are shown in the following Table:—

	Honorary.	Compounders.	Annual Subscribers.	Total.
January 1st, 1881 ..	48	90	302	440
Since elected	+3	+3	+34	40
Since deceased ..	..	−2	−8	−10
Since retired	..	..	−15	−15
January 1st, 1882 ..	51	91	313	455

There has thus been a net gain of eleven Annual Subscribing Members, one Compounder, and three Honorary Members.

The Council regrets to report that the Institute has lost through death: Mr. J. Bonsor, Dr. J. Barnard Davis, F.R.S., Mr. R. T. Gore, Mr. J. Jeremiah, Jun., Mr. J. C. Joad, Lord Ormathwaite, Colonel J. W. Willoughby Osborne, C.B., Mr. F. Ouvry, V.P.S.A., Professor G. Rolleston, F.R.S., and Mr. D. J. Rutherford.

Among these names, there are unfortunately those of two Anthropologists who have been so intimately identified with the progress of the science in this country that their loss demands more than a passing notice.

Dr. J. Barnard Davis was one of our oldest members, and before the formation of the Institute had been a fellow of both the pre-existing societies. He was elected into the Ethnological Society as far back as 1856, and into the Anthropological Society at its commencement in 1863. The unrivalled collection of crania, skeletons and other objects of anthropological interest which he steadily accumulated during his residence for many years in the Staffordshire Potteries, forms a striking testimony to the enthusiasm with which he applied himself to the study of physical anthropology. His "Thesaurus Craniorum," with its supplementary volume, and the "Crania Britannica," which he published in conjunction with the late Dr. Thurnam, may be reckoned among the most important contributions to anthropological science ever published in this country. In addition however, to these works, he was the author of several valuable memoirs, such as his papers on the osteology of the Tasmanians,

published at Haarlem, and his memoir "On Weight of the Brain in different Races," which appeared in the "Philosophical Transactions" for 1868. To our own Journal, and to the publications of the pre-existing societies Dr. Barnard Davis was also an esteemed contributor. It is a source of congratulation to the anthropologists of this country that his magnificent collection has been acquired by the Royal College of Surgeons, and that, being thus brought to the metropolis, and placed in the hands of Professor Flower, its value will henceforth be greatly enhanced.

Anthropological Science has also suffered during the last year a heavy loss by the death of Professor GEORGE ROLLESTON. In 1860, the year in which he was elected to the Linacre Professorship of Anatomy and Physiology at Oxford, he joined the Ethnological Society, and thence passed to the Institute on its formation as one of the original members. The Journal of the Institute contains several characteristic papers from Professor Rolleston's pen, especially those "On the People of the Long Barrow Period," "On the Human Remains at Cissbury," and "On Excavations at Sigwell." Probably his most important contribution to anthropology was contained in the well-written work on "British Barrows," prepared in conjunction with our respected member Canon Greenwell. But the value of Professor Rolleston's services to anthropology is by no means to be measured by the number of his written contributions. Always burdened by the pressure of official duties, he could command but scant leisure for original investigation or for the preparation of papers. But whenever he was able to attend our evening meetings, he never failed to freshen our discussions by his singular fluency of speech, and by his extraordinary range of general knowledge. At the Bristol Meeting of the British Association in 1875, he presided over the Department of Anthropology, and not only delivered an address of great value, but conducted the whole proceedings with his accustomed felicity. Professor Rolleston's death is the more to be deplored inasmuch as it occurred at the comparatively early age of fifty-two, at a time of life when hope was entertained of much future work, especially in the domain of archæological anatomy, for which he was peculiarly fitted by a rare combination of science and scholarship.

Mr. FREDERIC OUVRY, whose death the Institute, in common with so many other Societies, has had to deplore, joined us in 1868. His engagements did not permit of his frequent appearance at our meetings, but he is known to have taken a lively interest in the objects of the Institute.

Among the less known members whose loss we have to record, mention should be made of Mr. JOHN JEREMIAH, a young man of much promise, who a few years ago, before he was attacked by pulmonary disease, was a regular attendant at our evening meetings, and, as the pages of our Journal testify, a frequent contributor to our discussions.

Soon after the last Anniversary Meeting, the Council had the misfortune to lose the services of Mr. E. W. BRABROOK, who was induced, under medical advice, to resign the Directorship. Mr. Brabrook had performed the duties of Director of the Institute from the year 1872, when he succeeded Mr. C. Staniland Wake; but it should not be forgotten that he had previously acted for several years in a similar capacity in relation to the Anthropological Society. Throughout this long tenure of office, Mr. Brabrook had conducted the business of the Institute with such ability, energy, and courtesy as to earn for himself the high esteem of successive Presidents and Councils, as well as of the general body of members. It is sincerely hoped that Mr. Brabrook's retirement from participation in the active work of the Institute may be only temporary.

The Council had also to accept, with much regret, the resignation of Mr. J. E. PRICE, who was compelled, by pressure of archæological work, to retire from the Directorship at the close of last session. Mr. Price had for several years taken sole charge of the Journal of the Institute, and had devoted to this work a great amount of time and labour. Both to him and to Mr. Brabrook the Council desires to record its high appreciation of their honorary services.

The following are the names of the donors to the Library and Museum during the past year:—

J. W. Powell, Esq.; M. Emile Cartailhac; Prof. Enrico Morselli; M. Le Bon. J. de Baye; Dr. E. B. Tylor; Denis G. Zesas; James Bonwick, Esq.; Dr. W. Sharpe; F. W. Putnam, Esq.; Lieut. R. C. Temple; Dr. E. H. Knight; Prof. T. R. Jones; Dr. J. Evans; Lucien Carr, Esq.; J. Park Harrison, Esq.: Lieut.-Col. R. G. Woodthorpe; G. H. Boehmer, Esq.; James Dawson, Esq.; A. R. Grote, Esq.; Dr. D. J. Valentí y Vivó; Dr. Emil Holub; Hodder M. Westropp, Esq.; Dr. Dally; John Cole, Esq.; Dr. A. Weisbach; Prof. Schaaffhausen; Surgeon-Major H. W. Bellew; Prof. Cyrus Thomas; Dr. J. C. Southall; Miss A. W. Buckland; Sandford Fleming, Esq.; Signor Giustiniano Nicolucci; the Rev. F. A. Allen; Prof. R. Virchow; T. Kerslake, Esq.; G. Gould, Esq.; Sir J. Lubbock; Dr. Kollman; W. H. Dall, Esq.; Dr. Hoffman; A. R. Grote, Esq.; Alexander Ramsay, Esq.; C. Rau, Esq.; Clarence King, Esq.; Signor Paolo Mantegazza; Rev. C. Voysey; Royal Geographical Society; Society of Arts; Asiatic Society of Bengal; Anthropological Society of Berlin;

Société Impériale des Naturalistes de Moscou; Société de Borda Dax; German Anthropological Society; Vereins für Erdkunde zu Halle; Institut Géographique International; Geologists' Association; British Association; Royal United Service Institution; Royal Asiatic Society; Philosophical Society of Glasgow; Royal Historical and Archæological Association of Ireland; Royal Society; American Philosophical Society; Government of New Zealand; Sociedade de Geographia de Lisboa; Royal Geological Society of Ireland; Royal Society of New South Wales; Asiatic Society of Japan; L'Academie Royale de Copenhague; Academie Impériale de St. Petersbourg; Epping Forest and County of Essex Naturalists' Field Club; Koninklijke Akademie van Wetenschappen, Amsterdam; Société Impériale Russe de Géographie; Spanish Anthropological Society; Academia Nacional de Ciencias de la Republica Argentina; National Association for the Promotion of Social Science; Royal Institution of Cornwall; Académie Royale des Sciences de Belgique; Society of Antiquaries; K. K. Geographische Gesellschaft, Wien; Literary and Historical Society of Quebec; Anthropologische Gesellschaft, Wien; Museu Nacional de Rio de Janeiro; Magyar Tudományos Akadémia; Society of Biblical Archæology; Literary and Philosophical Society of Liverpool; New Zealand Institute; Société Impériale des Amis d'Histoire Naturelle; Société d'Anthropologie de Paris; Smithsonian Institution; Royal Society of Tasmania; Vereins für Erdkunde zu Metz; Royal Colonial Institute; Lewisham and Blackheath Scientific Association; Leeds Philosophical and Literary Society; Ceylon Branch of the Royal Asiatic Society; Royal Society of Edinburgh; Berwickshire Naturalists' Field Club; Government of Madras; Trustees of the Peabody Museum; Kaiserliche Leopoldino-Carolinische Deutsche Akademie de Naturforscher; Devonshire Association for the Advancement of Science, Literature, and Art; Canadian Institute; the Government of the Punjab; Birmingham Philosophical Society; State Board of Health, Massachusetts; Oberhessische Gesellschaft für Natur-und Heilkunde; Public Free Libraries Committee of the City of Manchester; Kaiserliche Akademie der Wissenschaften, Wien; North China Branch of the Royal Asiatic Society; R. Accademia dei Lincei; Librarian of the Grey Collection, South African Public Library, Cape Town.

The Editor "Nature;" The Editor "Athenæum;" The Editor "Revue Scientifique;" The Editor "Materiaux pour l'histoire de l'homme;" The Editor "Revue Internationale;" The Editor "Correspondenz Blatt;" The Editor "Journal of Mental Science;" The Editor "Education;" The Editor "Kansas City Review of Science and Industry;" The Editor "Revue d'anthropologie;" The Editor "Chrysanthemum;" The Editor "Scientific Roll;" The Editor "Revista di Filosofia Scientifica;" The Editor "Bibliographer;" The Editor "Knowledge."

On the motion of the PRESIDENT, seconded by Mr. HEYWOOD, the report was unanimously adopted.

The President then delivered the following address:—

ANNIVERSARY ADDRESS *to the* ANTHROPOLOGICAL INSTITUTE *of* GREAT BRITAIN *and* IRELAND. By Major-General A. PITT-RIVERS, F.R.S., *President.*

HAVING for the second time had the honour of being elected President of this Institute, it now becomes my duty, in accordance with previous custom, to review the work of the past year. In so doing I shall adhere to the classification of subjects followed by Mr. Evans and myself on former occasions.

DESCRIPTIVE ETHNOLOGY—*Five Papers.*

1. "On Platform Dwellings in Assam," by S. E. Peal, Esq. Building on piles is a racial custom peculiar to all the hill tribes except the Khasias. When these hill-tribes migrate to the plains, they still continue to use them there for centuries. The Aryans and semi-Aryans of the desert do not use them. The mode of building may vary slightly amongst different tribes. This adds to our knowledge of the geographical distribution of the custom in question, a study to be more fully worked out in the future. It is not likely that this custom any more than other customs will be found in its widest range to be purely racial. It has a distribution of its own, but we have already evidence that in this part of the world its area of existence is more or less continuous, ranging over a wide region to the north and south of Assam.

2. "On the Wild Tribes of the Naga Hills," by Lieutenant-Colonel Woodthorpe. The Nagas are a large and powerfully built people, averaging as much as 5 feet 9 inches in height, and are divided into two sects, one of which is distinguished by wearing a kilt consisting of a strip of dark blue cloth eighteen inches wide. Personal ornament may here be traced to its origin. Colonel Woodthorpe observes that all their personal decorations have a defensive purpose. As a consequence of this it appears that the women are less highly

decorated than the men. The practice of carrying two spears, the one to be thrown, and the other used at close quarters, is one which appears to have prevailed in many parts of the world, conspicuously so amongst the Romans. Such an expedient is so obviously dictated by considerations of safety that one need hardly be at the pains of tracing its distribution. Defence by means of pit-falls is also a common expedient of early times, while on the other hand, the use of "rangies" or "panjies," as they are here called, though likewise of general use, appears especially to belong to the parts of the world we are considering, being in common use among the Dyaks on the south, and the Chinese on the East; the use of long shields also connects them with people of the Indian Archipelago. In their agricultural appliances the use of terraces reminds one of the existence of terraces so common in England and elsewhere in prehistoric times. Most interesting also is it to compare the wooden sledge, of which an illustration is given in the paper, with precisely similar ones which I have seen used in Sweden, and for a similar purpose of removing large stones. The antiquity of this precise form of sledge is attested by the finding of one of them in a tumulus in Denmark; it is now in the Museum at Copenhagen, and consists simply of the fork formed by the trunk of a tree and two branches.

On the front walls of their houses, of which an illustration of one is given in the paper, the heads and horns of animals are carved in bas-relief. This appears to me to be a survival of a custom widely prevalent in this region of hanging in the front of the house the heads of animals which have been eaten in feasts in order to attest the wealth and hospitality of the owner. Such a custom is mentioned by Mr. Man in the Andamans, and by Dr. Comrie in New Guinea, and its existence in intervening countries will no doubt be traced now that attention has been drawn to it. The connection of these carvings amongst the Nagas, with the placing of skulls and horns in the Andaman Islands and in New Guinea, is shown by a statement of Colonel Woodthorpe's in his second paper describing the non-kilted

Nagas, in which he says that these or similar carvings are put up on the occasion of the owner giving a feast, and thereby proclaiming himself a man of substance. The custom of shaving the head is worthy of notice. If the Nagas are to be regarded as a centre of fashion in this respect, the ladies of the Andamans may be considered perfectly Parisian in their costume.

In a second paper Colonel Woodthorpe describes the non-kilted Nagas. Amongst other points of interest the very slight and gradual changes spoken of as taking place in the tools and weapons of these people as you pass from tribe to tribe are well worthy of notice. Illustrations of these slight changes of custom and form would be very interesting, as it is by such means that we are able to trace the continuous development of ideas.

3. David Christison, M.D., "On the Gauchos of San Jorge." Although the author does not appear to have had the advantage of possessing a copy of our anthropological "Notes and Queries," and his observations consequently have not been anthropologically conducted, he adds many points of interest to our knowledge of these people. The Gauchos are an entirely mixed race, being composed of Negroes, Brazilians, and Spaniards, as well as Charruas. Their mode of life is rather Indian than European. They live almost entirely on animal food, and they eat but once a day, at sunset. They are well developed men, with capacious chests and muscular limbs: they pass their time chiefly on horseback, and the men retain the remarkable power of vision so common to the aborigines of America, and an instinct for finding their way. Their only manufacture is cutting and plaiting various articles of hide into articles of horse-gear. They speak Spanish. Their games are all of a gambling nature; music and dancing, although unknown originally to Indians of these parts, is practised by them. Their dead in remote situations are exposed Indian fashion on the lonely Campas. The Gauchos are tolerably free from superstition: their indifference to life is such that the "gusto de malar," or love of manslaughter, is described as being common amongst them, and in some places nearly half the young Gauchos are believed to have died a

violent death. Their dogs serve as scavengers (like those of the Turks), and although showing deference to their nominal masters evince no signs of affection.

4. "On Some Vestiges of Girl-Sacrifices, Jar-Burial, and Contracted Interments in India and the East," by M. J. Walhouse. After giving a description from personal observation on the custom of urn burial, and the sacrifice of virgins, a practice connected with the doctrine of atonement in various parts of the world, Mr. Walhouse proceeds to trace the distribution of this and allied customs elsewhere. The subject of urn burial is well worthy of being studied in all its ramifications and varieties. The practice of reversing the urn, and placing it mouth downwards, referred to by Mr. Walhouse, is one to which allusion has already been made in other papers read during the present year. Recently in excavations I have myself come upon evidence of what in this country appears to have been the survival of the practice of urn burial. In Dorsetshire it appears to have been the custom on certain occasions in British tumuli, whether as memorials or for some other purposes, to bury an urn alone without any vestige of human bones burnt or otherwise. On other occasions I have ascertained that fragments only of an urn have been buried with the remains of the dead. An examination of the fragments made it certain that pieces only were put in to mark the spot, much in the same way that the Romans were known to have buried shards of pottery to mark the sites of their termini; and the Saxons, also, did the same thing in their graves.

5. "Further Remarks on the Arts of the Andamanese and Nicobarese," by Mr. E. H. Man—in which he makes some additions to the valuable paper that he has contributed to the Institute on a former occasion, correcting many errors that have been made by former writers, and replying in great detail to some queries put by me in a paper published in the Journal of the Institute some time ago. The great value of these additions to our knowledge of the arts of the Andamanese will not perhaps be fully understood by the mere reader of our Journal,

but will be duly appreciated by the scientific student of the arts of life, for by means of them and of like carefully studied communications from other sources, we are made acquainted not only with the arts and customs which *exist* amongst the people described, but also we are informed upon the best authority that certain other arts and customs do *not exist*. This is of the greatest value to those who study the distribution and development of the arts of life. The anthropologist who is dependent on the ordinary accounts of travellers for his information is often sorely puzzled to determine whether silence upon certain points arises from non-existence, or merely from insufficient observation, and he hesitates to exclude such places from the area of distribution of the particular matter that he may happen to be writing about, upon negative evidence alone. When, however, a writer, with the little volume of our "Notes and Queries" in his possession, and with the special opportunities that Mr. Man has had, puts himself to the trouble of investigating and replying almost categorically to the questions contained in it, his evidence becomes of the very greatest anthropological importance. It is this which characterises in a special manner the value of Mr. Man's communications. Not until the same course has been followed by a greater number of travellers will the anthropological generaliser feel that he is treading upon sure ground, and that his deductions are no longer liable to be upset by future explorers.

DEDUCTIVE ETHNOLOGY.—*One Paper.*

"Origin and Primitive Home of the Semites," by G. Bertin, Esq. This paper was not put into type before this address was printed.

PREHISTORIC ARCHÆOLOGY.—*Ten Papers.*

1. Mr. A. L. Lewis gives a description of several stone circles near Minsterley, in Shropshire. Without committing himself to any theory, he draws attention to the circumstance that two of these monuments form a direct line with the point

of Stapeley Hill, their bearing being 40° north of east, a coincidence for which he believes that parallels may be found in several other prehistoric monuments which he mentions. Following in the line of investigation pursued by Mr. Flinders Petrie, there can be no doubt that a useful purpose is served by thus directing attention to points of this nature when they occur. Mr. Lewis' caution, however, is by no means uncalled for, and the importance of noticing the natural features of the ground which may have influenced the position of these and similar monuments, cannot be too strongly insisted upon. In the case of hut-circles, special notice should be taken of the not infrequent cases in which, for facility of drainage, the opening is made to face down-hill.

2. "Remarks on Archaic Structures in Somersetshire and Dorsetshire," by the same author. In speaking of these structures, Mr. Lewis again states that while he has little sympathy for the elaborate astronomical speculations of some writers, he firmly believes them to be connected with the worship of the sun. There are outlying stones in connection with stone circles in many different parts of England which have very nearly the same bearing from the circles. These coincidences, he believes, are not undesigned. They must have been so placed for some reason which it would be for the advancement of Science to find out. I need hardly say that in his endeavours to ascertain the intention of such coincidences Mr. Lewis has the good wishes of this Society. A full consideration of the subject of course demands that cases in which the facts fail to support the theory of sun-worship should be fairly balanced with those in which the coincidences occur. Referring to some remarks of Lord Talbot de Malahide on this paper, in which he speaks of the giant at Cerne (not Carne, as it is mis-spelt in the paper), I may mention that as this monument and the earthworks adjoining it happen to be my property, my intention is this year, if time and health permit, to make excavations at that place, in which I hope to receive the valuable assistance of Mr. Lewis and other members of this Society.

3. "The Stone Age of South Africa," by Mr. W. D. Gooch. It would be impossible for me in the limited space allotted to me to give a résumé of this valuable, and so far as existing knowlege extends, exhaustive paper. I must therefore pass over many interesting points relating to the form and construction of the implements, and proceed to notice what appears to me to be the main point of novelty in the paper, viz.: the palæolithic period of South Africa. For some years past we have received from the Cape chipped implements of tongue-shaped form, corresponding to those found in the river-gravels of Europe. But for obvious reasons anthropologists have declined to accept evidence of the existence of a palæolithic age derived exclusively from the forms of tools or weapons. Although in nearly all countries in which the earliest specimens of human art have been found, they have assumed like forms, yet we know from the more carefully studied prehistoric remains of our own country, that the earliest forms of implements have, under certain circumstances, survived amongst later neolithic forms, where they have probably been used as picks or tools for agricultural purposes, and, moreover, the experience of our own large prehistoric flint workshops has shown that in the formation of the more improved forms of celts and axes of the neolithic age, a flint passes through a stage in which it very closely resembles a palæolithic implement, and if abandoned in a half-finished state, might easily be mistaken for such; besides which, in a country like South Africa, inhabited until quite modern times by savages, it was quite possible that the earliest phase of art corresponding to our palæolithic era might have continued to a much later period than in those parts of the world in which civilization has earlier developed itself. Under these circumstances anthropologists wisely suspended their judgment upon the occurrence of these early forms of implements in South Africa, until their age could be fixed by geological evidence. This evidence Mr. Gooch has now supplied. By means of well executed plans and sections which, as an engineer, he has been able to supply, he has shown that the rudest forms of implements occur in yellow sandy marl mixed with stones, on

the sides of the valleys 25, 50, and 100 feet above the present beds of the rivers, in positions corresponding precisely to those of the implement-bearing gravels of Europe. Further than this he has found them in red earth, which he conjectures to have been deposited previously to the formation of the present river system of the country, and corresponding perhaps to our glacial epoch. I do not perceive that he has actually traced the tongue-shaped implements that I have spoken of to these deposits, but he has shown that the implements and flakes found in the earliest deposits are the rudest; and that a gradual improvement corresponding to the development from palæolithic to neolithic implements in this country has taken place with the advance of time, and that they have been gradually formed out of more suitable materials. The geology of Natal and the Cape of Good Hope has been so little studied, that Mr. Gooch has not yet been able to associate these evidences of man's hand with earlier species of animals. This important part of the subject, therefore, remains for future explorers, but apart from this, if the Institute had been the means of producing nothing more during the present year than this valuable communication from Mr. Gooch, it might have been congratulated in making an important step in the progress of prehistoric research.

4. "On the Discovery of Chert Implements in the Gravel of the Nile Valley," by General Pitt Rivers. In Egypt, as in South Africa, implements of palæolithic type have for some years been found on the surface, but, for the same reasons given above, anthropologists have hesitated to pronounce positively as to their age, until geological evidence of their "gisement" was forthcoming, a precaution rendered all the more necessary in this case from the known fact that knives of flint were used for embalming the Egyptian mummies. Whilst travelling in Egypt in March of the year 1881, I was fortunate enough to discover flakes and an implement of undoubted human fabrication, in the gravel of the Nile Valley near Thebes, 6 to 10 feet deep, beneath stratified deposits of mud and gravel. This gravel had become so hard in Egyptian times as to enable

them to cut flat-topped chambers and square pillars out of it, which had retained the sharpness of the outline to the present day. Some of the flakes were chipped out of the gravel in the sides of the tombs, thereby proving the great antiquity of the flints, which were deposited during the formation of the gravel. As in the case of the South African deposits, I failed to discover animal remains in the gravel in association with these implements. This, then, is the second occasion on which, during the present year, the existence of a palæolithic period has been fixed by geological evidence on the continent of Africa.

5. "On the Human Fossil at Nice," by Alfred Tylor, Esq., F.G.S. In this paper Mr. Tylor gives a succinct account, by means of sections taken by himself, of the discovery by M. Jochim, in 1880, of a human skeleton in quaternary deposits near Nice. Mr. Tylor believes that this skeleton was not an interment but a true fossil, having been floated into the quaternary deposit whilst it was in process of formation. He believes the deposit to have been caused during a pluvial period the existence of which he has discussed in previous publications. The jaw and other bones he considers to afford corroborative evidence of its belonging to a very early period. The paper is one of considerable interest both on account of the original observations made by Mr. Tylor himself, and his opinion on the views entertained by M. Desor and other geologists who have written on the subject.

6. "Sepulchral remains at Rathdown, Co. Wicklow," by G. A. Kinahan. The graves contained burnt bones and the remains of two urns, the clay of the urns being mixed with grains of mica.

7. "Excavations in Tumuli, near Copiapó in Chili," by J. H. Madge. The contents of these graves appear to be of the usual character, the most remarkable object being a skeleton supposed to be that of a Spaniard, but since pronounced by Professor Flower to be that of a native, which had the marks of eight arrow wounds. The eighth vertebra and corresponding left rib has marks in three distinct places caused

by one arrow which, striking the rib, took out a splinter of bone, again passing through the same rib, where it was connected with the back, it penetrated the vertebra, and was found embedded in the bone, thereby affording proof, if proof were wanting, of the efficiency of flint-pointed arrows for the purposes for which they are constructed.

Another point of a flint arrow-head was found in one of the ribs. All the wounds appear to have been delivered from the right side.

8. "On some Stone Implements from British Guiana," by E. F. im Thurn. Mr. im Thurn commences with an important observation, to account for the fact that only implements of ruder kinds are found in the kitchen middens of British Guiana, which he believes to have been made by the Caribs of the islands, none of the more elaborately formed inplements which the Caribs make having been found in any of them. He says the Caribs are in the habit of making highly finished stone implements which they never use, but hang up only as ornaments, to exhibit the perfection of their art. Long ago, when discussing the possible use of the elaborately serrated chert implements of the Caribs, one of the best of which is in my museum, I hazarded an opinion that it was merely a work of fancy, intended to show the skill of the fabricator, rather than for any purpose of utility. Perhaps we do not sufficiently consider this trait of the human character in reviewing the work of savages. The highly ornamented handles of their common utensils, the prodigious skill and finished decoration given to their flint implements, notably those to the stone implements from Denmark, the elaborate devices and ornamentation of their pottery, that of the lower phases of civilization being more highly ornamented than the pottery of a succeeding age,—all this affords evidence of the time devoted to superfluities in an early condition of culture. The same thing applies with equal force to those of our own time, whom necessity does not compel to devote their time to useful objects. It lies at the root of all games which, useless in themselves, are indulged in by persons who have nothing better to do, as an

exhibition of acquired skill. When we see in our own days how large a share of time is occupied in works of sheer vanity, I think this element should enter largely into our estimate of prehistoric man. Stone adzes in British Guiana are chiefly used now by the pottery makers for smoothing their vessels. This throws light on the fact that stone celts have been found in the pottery kilns of the Romans in Auvergne. In the absence of the axe, smooth pebbles are used, as is the case with the commoner class of pottery in Brittany at the present time. They are in the habit of painting their stone implements, of which a considerable number are kept in store by them.

9. "On the Earthworks of the Yorkshire Wolds and Excavations in Dane's Dyke," by General Pitt Rivers. I show that the Dykes of the Wolds hang together as a system of military defence, and appear to be the work of a people at war with the inhabitants of the interior, and that the Dane's Dyke on Flamborough Head is in a position to form a base of operations for the whole of them, whether they were invaders landing on the coast, or natives driven to the sea by an inland enemy. I then describe some excavations made by me in this Dane's Dyke, and give evidence of high probability approaching proof that it was erected not later than the Bronze Age, when flint was still employed, and that the defenders worked flint on the rampart after it had been finished. I then discuss the question as to what quarter the invaders, if invaders they were, are likely to have come from, and show that the absence of the characteristic ornaments and forms of Denmark, make it unlikely they should have come from thence, and probable that, assuming them to be invaders, they came from further south, or else that, supposing them to be the work of a people driven to the coast, they must have imported their Bronze culture from some primitive source. Absolute proof of the connection of the Dane's Dyke with the Dykes of the Wolds, beyond what is afforded by military considerations, can only result from further extensive excavations, and will probably be a work of great labour and expense. If life were secured,

one would prefer to wait until further evidence had accumulated; but in this, as in so many anthropological investigations, we must put aside all idea of finality, and rest satisfied for the time being with an imperfect work. The Dyke system of Great Britain, covering so large an area of our soil, and affording, when viewed by a military eye, clear evidence of the direction in which the people who made them were facing, during the extensive wars of prehistoric times, is no doubt destined to occupy the attention of future anthropologists, and to throw much light on the migration of tribes. That the Dykes served other purposes than those of defence seems very probable, but of the defensive character of some of them there can be little doubt. Excavations only can determine satisfactorily the period to which they belong.

10. "Account of the Discovery of Six Ancient Dwellings, found under or near to British Barrows on the Yorkshire Wolds," by J. R. Mortimer, Esq. Mr. Mortimer here gives a description of British dwellings, some formed with circles of upright stakes, and others excavated in the ground and roofed over; and he shows that they were probably burnt, perhaps at the death of the owners, and tumuli raised over them containing the remains of the dead. This is important in its bearing upon the custom of burying in the habitation of the deceased person, which, as is well known, is practised by many barbarous people at the present time. I have myself lately found evidence of the same custom in Dorsetshire. Numbers of pits which I excavated contained remains which proved that they were not graves, but probably pits, perhaps refuse pits, attached to the dwellings. In one of these, of the Romano-British period, a crouched-up skeleton was found carefully interred on its side. This must have been an exceptional case in which the deceased, perhaps the owner of the dwelling, was interred in his own house.

These and other communications from Mr. Mortimer form a valuable supplement to Canon Greenwell's long and careful inquiry into the tumuli of the Yorkshire Wolds. That archæo-

logical investigations of this nature, when carefully conducted, are of the utmost anthropological value none can doubt, except such as are impatient of evidence, fond of hasty, flimsy generalisation upon imperfect data, and careless, so long as present interest is satisfied, whether their deductions stand the test of time.

PHYSICAL ANTHROPOLOGY.—*Three Papers.*

1. "A new Instrument for determining the Facial Angle," by W. G. Atkinson. Mr. Atkinson's instrument is ingenious and well worthy of holding a place with others of the same kind, assuming that it is of importance the facial angle should be taken. If I may venture to express my own opinion on this subject, it is that we should carefully keep in view the object of the measurement in question, and take the simplest and most convenient method of obtaining it.

Now the object of the measurement undoubtedly is to ascertain the degree of prognacity of a skull, because the development of the jaws, or rather it may be more proper to say, the non-development of the intellectual parts of the head in reference to the jaws, indicates an approach towards the lower forms of life. It is desirable that the degree of prognacity should be expressed in figures, but it is immaterial whether figures represent a proportional measurement or an angle. The measurement from the basion to the nasion, and from the basion to the alveolar point, taking the first at 100, represents the degree of prognacity of the face, and has the merit of being able to be taken with the same instrument that is used for measuring the other parts of the skull, a point of considerable importance to the explorer of prehistoric remains in which human skeletons occur. To my mind, therefore, the gnathic or alveolar index as proposed by Professor Flower is sufficient for the purpose. There is no particular reason that I am aware of for referring the facial angle to the visual axis, and it is not desirable to multiply the measurements, indeed it is very important to curtail them. The only question

appears to me, one to which I have adverted elsewhere, viz.: whether the common point of measurement should be the anterior margin of the foramen magnum, or the meatus auditorious, the latter point having the advantage of enabling a comparison between the living head and the skull. Also, whether it be the nasion or the ophryon to which the upper measurement is taken for a base of comparison matters little, provided uniformity of practice can be secured; both serve equally the desired purpose of ascertaining the relative length of the jaws. I make these remarks simply in the interest of uniformity and simplicity in the mode of measurement, the importance of which has been impressed upon me of late; the facial angle is, however, still used by physical anthropologists both in England and on the Continent, by whom the ingenuity of Mr. Atkinson's instrument will be duly appreciated.

2. "Five Naga Skulls," by Prof. G. D. Thane. These skulls are of moderate size, the cubical contents of the three males being 1377 cubic inches, and those of the two females being 1238 cubic inches. The average cephalic or breadth index is 78·1; the height index, 78·4; the average gnathic index, 98·6. They are characterised by high orbits and narrow nose: in other respects they exhibit Mongolian characteristics.

3. "On the Stature of the Inhabitants of Hungary," by Dr. Beddoe. This refers to the investigations of Drs. Körösi and Scheiber on the recruiting returns for the whole of Hungary. The stature of the various races stands in the following order, commencing with the highest, viz.: Vends, Germans, Croats, Slovaks, Jazyges, Jews, Roumanians, Magyars, Ruthenians, and Kunen (?) Kumanians, but I see it is stated that the average difference between the highest and the lowest of them does not exceed 1¼ inch. The recruiting returns of a country are not of very great value, owing to the rejecting standard, which in the Hungarian army is 1·554 metres, about 5 feet 1⅛ inch; but after calculating for growth, &c., Dr. Beddoe makes the average height of the German adult 5 feet 5½ inches, and of the Magyar and Slav 5 feet 5 inches. Dr. Scheiber finds the inhabitants of

the cities in Hungary taller than those of the rural districts, as did Quetelet in Belgium; but this Dr. Beddoe thinks is owing to there being more Germans and Jews in the towns. The rule in England is the reverse.

PHILOLOGY.—*One Paper.*

"Notes on the affinity of the Melanesian, Malay, and Polynesian Languages," by the Rev. R. H. Codrington. This paper not having as yet been printed, notice of it must be deferred.

SOCIOLOGY.—*Seven Papers.*

1. Miss Buckland gives a remarkably interesting résumé of M. Broca's investigation on the subject of trepanned and perforated human skulls which have been found in the caves of Marne, in the Department of Charente, belonging to the neolithic period, and which operation is still practised by the Kabyles of Algeria and in the Pacific Isles. Whether the facts will sustain a theory of such definite complexity as M. Broca appears to have based upon them must be left to the judgment of the medical profession of which Dr. Broca was so distinguished a member. One view, however, appears so reasonably to have suggested itself to the investigators of this subject that it may, I think, be accepted by anthropologists without cavil. I allude to the coincidence that appears to have existed between the hole bored in the human skull, and the holes bored in the cists and funeral urns of the dead, both being intended for the passage of the malign spirits to which maladies and death are so commonly attributed in early and barbaric ages. Miss Buckland hopes that by drawing attention to this subject care may be taken to ascertain whether or not similar evidence of trepanning may have existed amongst the people of the neolithic age in England.

2. "Notes on the Western Regions," translated from the "Tseen Han Shoo," by Mr. A. Wylie, and communicated by Mr. Howorth. This paper relates to the tribes and people in the neighbourhood of China between 207 B.C. and the year 9 A.D. Although it does not convey to the European mind any very

definite idea of time and place, there can be no doubt that it contains much potential usefulness. For the present, most of us will be content to regard it as a reserve store of information for future anthropologists when a greater knowledge of the Chinese people will enable them to take a more lively interest in the matters therein recorded.

3. "Thomas of Aquinum and Anthropology," by the Rev. W. S. Caiger. This paper is put forward for the purpose of showing how totally at variance with modern ideas are the writings of this philosopher, who has been upheld by the Roman Pontiff as an authority on matters anthropological. It is well occasionally to cast back into the dark ages in order to keep up a proper measure of self-esteem, even though nothing of anthropological value can be learnt from such an inquiry. Speaking of the Encyclical letter issued by the present Pope in favour of promoting scientific inquiry, it may be useful to take notice of this circumstance in its bearing upon modern investigation, and especially upon anthropological science. When in Brittany three years ago, having occasion to take the measure of a number of human skulls, which in that country are preserved in reliquaries in the churchyards, I was surprised to find on several occasions that I received assistance from the parish priest, a matter of some importance to me, as the Bretons themselves were extremely hostile to any interference with the remains of the dead. On one occasion this was explained to me by the Curé of one of the villages, who informed me that they had received instructions from the Pope in favour of promoting science. There can be little doubt that the Church of Rome, always wise in its generation, and perceiving that the teaching of the Church in physical matters has, in the long run, been compelled to bend to the discoveries of science, is endeavouring to utilise scientific investigation, in the hopes that under clever manipulalation it may, for the time being at any rate, be made to support some of its particular dogmas.

But from whatever cause this step may have been taken, anthropologists must hail it as a step in advance. We may

safely expect that the study of nature will, in the end, tend to the production of its legitimate fruits, rather than to the ripening of any extraneous blossoms which the Church may append to it. The example of the Church of Rome, I may add, might advantageously be followed by other churches into which the voice of reason is usually supposed to receive freer admittance.

4. "On a collection of Monumental Heads and artificially deformed Crania from Mallicollo, New Hebrides," by Professor Flower. Mr. Flower described several artificially deformed heads from this island, with a description of the process of deformity, sent by Mr. Boyd. This sets at rest the question as to the artificial character of the deformity. All the people on the south coast of the island practice it alike.

5. "On the Animism of the Indians of British Guiana," by E. F. im Thurn. The author gives many curious examples of the beliefs of these Indians. Amongst the most striking causes of hallucination are the vividness of their dreams, and the belief that all the incidents of a dream are actual occurrences in the career of a wandering spirit during sleep. An amusing instance of this is given. One evening around the camp fire, the conversation turned upon the Zulu war, which happened to be raging at the time. The party broke up and retired to rest, when in the middle of the night loud cries for help were heard from a negro who happened to be of the party. On investigating the cause of these screams, it was found that the unfortunate negro, as the representative of the African race, was receiving condign punishment for some offence, which since the party retired to rest he had committed, on the remote continent of Africa during the Zulu war, and nothing would persuade the Indian by whom the blows were inflicted, that the punishment was undeserved. This must add greatly to the complexity of life in British Guiana and to the difficulty of conducting matters to a rational issue.

6. "Notes on the Asiatic relations of Polynesian Culture," by Dr. E. B. Tylor. Mr. Tylor in a short note draws attention to some further evidence tending to establish connection in culture

between the Asiatic continent and the Polynesian Islands. Colonel Yule had pointed to several customs which prevailed throughout that region, and Mr. Tylor himself had shown the connection which existed in certain games and myths. I had also shown the identity of the prevailing ornament in New Zealand and New Guinea and its resemblance to forms in Assam and Upper India, and I have already in this address drawn attention to the use of panjies, of long shields of a peculiar form, pile buildings, and the custom of exposing skulls of animals or carved representations of them as an assertion of wealth, connecting the Nagas with the Andamanese and the people of the south. To these might be added the use of the blow pipe in various places, the employment of vessels with planks sewed together, the affinity of the stone implement of Polynesia and Burmah, and their dissimilarity to those of the rest of the world; a consideration of the line drawn between the use and non-use of the bow and the employment of shell trumpets throughout the region between India, Japan and New Zealand. These latter being natural productions would not imply connection in culture had it not been for certain peculiarities of form, their continuous distribution and their employment in a particular form of canoe, which is itself continuous. All these considerations tend in various degrees and in different directions, no less than affinities of language, to prove that communication has existed in times past along a region, the geographical features of which adapt it to become one of the great highways of the world, and at the same time indicate the probability that the various arts have been carried independently and not by means of any great racial or social intercourse.

Mr. Tylor now shows that the use of the nose flute occurs in Fiji, Society Islands, Tonga, New Zealand, North Australia, and India, and he even suggests the possibility of the connection of certain myths and poems in Scandinavia. It seems to me that these connections, when proved, need not in all cases be taken to imply constant intercourse, but may have taken place through the agency of casual wanderers and people of the Gipsy class.

When, however, absolute identity is found to exist in the means of locomotion, such as is afforded by the use of the outrigger canoe, over the whole of the Indian and Pacific Islands, the distribution of which formed the subject of a paper read by me before the Institute some time ago, we need not, I think, be surprised that such connections should have existed; indeed, it appears certain that they must have done so. I would lay special stress on the fact that a circle may be drawn around the distribution of the outrigger, beyond which nothing of the kind appears on the face of the globe, and that the region of its distribution coincides to a great extent with the other connections to which attention has been drawn.

7. "Fijian Riddles," by the Rev. Lorimer Fison. Not the least interesting portion of this paper is a digression in which the author suggests that the employment of houses built on piles is a survival of houses built on mounds which prevail in Fiji, or perhaps he thinks it may represent the mingling of two races having different forms of architecture. The riddles throw some light on their customs and arts, but would seem to us more like a figurative mode of speech than riddles. It is quite an institution, however, amongst them, and the formality with which they are propounded must make society in Fiji as tedious as any tea party of young ladies in this country.

8. "Description of Andamanese Bone Necklaces," by Dr. Allen Thomson. In this paper Dr. Thomson describes anatomically the ingredients of a number of bone necklaces, the chief part of which were brought by Mr. E. H. Man from the Andamans. This investigation shows amongst other things that the bones of the pig were used for this purpose, which puts to flight the idea which had suggested itself, that the pig might have been excluded as an unclean animal. The bones are both human and animal, the former probably memorial; and besides these, wooden substances are employed which, Dr. Thomson suggests, were introduced as imitations of the bones.

It cannot, I think, fail to encourage descriptive ethnologists to give full and accurate accounts, with carefully formed

collections of the arts of savages, when it is seen that a single class of objects, and that so apparently uninviting a one as bone necklaces, is capable of producing a communication of so much value and interest, from a distinguished ex-President of the British Association. Had not the collection of these objects been complete, and embraced every variety of the necklaces in use by the people, the materials for an exhaustive investigation of this nature would have been wanting. Nothing gives one a better idea of the immense field of research which will lie open to the anthropologist, when observations will be accurately made and anthropology really become a science.

APPLIED ANTHROPOLOGY.—*One Paper.*

"The Laws affecting the Relations between Civilized and Savage Life, as bearing on the dealings of Colonists with Aborigines," by Sir Bartle Frere, G.C.B., &c. Concerning this valuable paper, which deserves to be read by all anthropologists, I will only say that I have ventured to classify it separately under the head of Applied Anthropology. It has often been urged against anthropology that it has no practical result; that our deductions may be more or less interesting in the abstract, but that they have no useful bearing on the affairs of life. To a certain extent this charge against us is not unfounded, but we may be certain that if such is the case we ourselves rather than our science are to blame, for no subject is more capable of being turned to useful account than the scientific study of mankind. Nothing, indeed, can be more foreign to our subject than party politics, but for this very reason, if for no other, we should endeavour to give a practical turn to our science. The moment also is auspicious for such an attempt. Party politics run so high, that measures are rarely considered upon their merits representative institutions have been carried so far that ignorance is better represented than knowledge, and knowledge is swamped by ignorance; the fundamental laws of society are disregarded in favour of a time-serving policy, and we run the risk of a relapse of civilisation. If it is said that scientific men have

seldom the experience necessary for practical statesmanship: this does not apply to anthropology, for on looking over the list of contributors to our Journal, we find that on former, no less than on the present occasion, it has included the names of Governors of Colonies, and others who are at the same time Statesmen and men of science. But if it is for the interest of Society that the voice of science should be heard on the affairs of the day, it is equally for the interests of our Society that its utility should be recognised. There is a practical quality of the English mind which prevents the people from ever taking a lively interest in ideas and studies, the present usefulness of which is doubtful. If we look at those Societies and subjects which flourish most vigorously in this country, we shall find that they all have a practical as well as a scientific side, and I believe that it is to this cause, as much as to any other, that anthropology in England has not received that full measure of support from the public which it has received from science.

Dr. ALLEN THOMSON moved, and Canon GREENWELL seconded, a vote of thanks to the President, which was carried unanimously.

The Scrutineers reported the result of the ballot, and the following gentlemen were declared to be duly elected to serve as Officers and Council for the ensuing year:—

President.—Major-General Pitt Rivers, F.R.S.

Vice Presidents.—Hyde Clarke, Esq.; John Evans, Esq., D.C.L., F.R.S.; Prof. W. H. Flower, F.R.S.; Francis Galton, Esq., F.R.S.; A. Thomson, Esq., M.D., F.R.S.; E. B. Tylor, Esq., D.C.L., F.R.S.

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On the motion of Mr. A. L. Lewis, seconded by Mr. A. H. Keane, thanks were returned to the Auditors, the Scrutineers, and the retiring members of the Council.

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